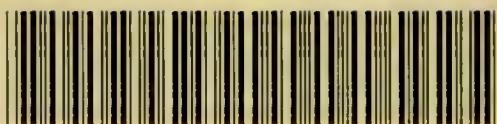


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For Doctor J C Riley
with the regards of
Charles Abbott.



AN ESSAY
TO PROVE THE
CONTAGIOUS CHARACTER
OF
MALIGNANT CHOLERA.

A N E S S A Y

TO PROVE THE

CONTAGIOUS CHARACTER

OF

MALIGNANT CHOLERA;

WITH BRIEF INSTRUCTIONS

FOR ITS

PREVENTION AND CURE.

BY

BERNARD M. BYRNE, M.D.,

SURGEON U. S. ARMY.

SECOND EDITION,

WITH ADDITIONAL NOTES BY THE AUTHOR.

The promulgation of every truth is, in its general effects, beneficial—that of every error, mischievous.

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1855.

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TO

NATHAN R. SMITH, M. D.,

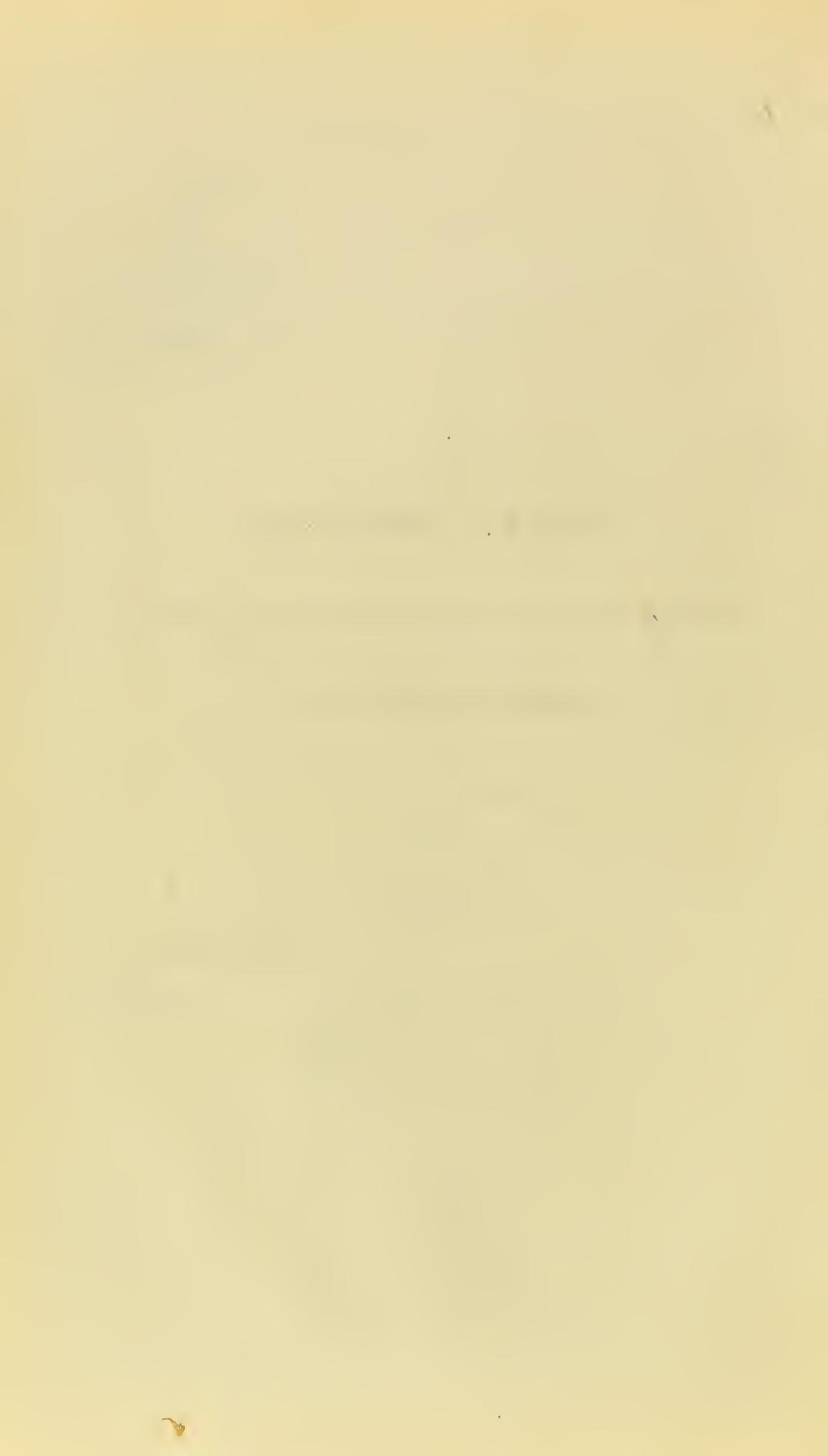
PROFESSOR OF SURGERY IN THE UNIVERSITY OF MARYLAND,

THE FOLLOWING ESSAY

IS MOST RESPECTFULLY DEDICATED

BY HIS FRIEND,

THE AUTHOR.



*From DR. J. K. MITCHELL, Professor of the Practice of
Medicine, in Jefferson Medical College, Philadelphia.*

MESSRS. CHILDS & PETERSON,

GENTLEMEN—I have perused with attention and pleasure, the Treatise of DR. BYRNES, U. S. A., on Cholera. Until very lately, the profession throughout the world, rejected the doctrine of its contagiousness ; but as medical men every where begin to lean towards an opposite opinion, this work will make its appearance opportunely. Its method, style, doctrine, and practical wisdom, entitle it to the careful perusal of every practitioner in the country.

With respect,

Yours,

J. K. MITCHELL, M. D.

CONTENTS.

	PAGE
Contagion in General, - - - - -	21
Progressive Atmospheric Influence, - - - - -	28
Local Atmospheric Influence, - - - - -	37
Terrestrial Emanations, - - - - -	38
Human Intercourse, - - - - -	40
General Facts, - - - - -	42
Particular Facts, - - - - -	68
Objections of the Non-contagionists, - - - - -	97
Evils of the Doctrine of Non-contagion, - - - - -	124
Prevention of Cholera, - - - - -	134
Treatment of Cholera, - - - - -	149

P R E F A C E

T O T H E S E C O N D E D I T I O N .

WHEN the first edition of this Essay was published, in the Fall of 1833, there were comparatively but few physicians in the United States, and I may add, in Europe, who believed in the contagiousness of cholera. So generally was the non-contagiousness of this disease proclaimed by the medical profession, by the newspaper press, and consequently by the public voice, that the few contagionists, *rari nantes in gurgite vasto*, who here and there ventured to advance their views in opposition to such a world-weight of authority, were looked upon as "presumptuous eccentrics," who sought distinction by the singularity of their opinions. As some evidence of the very small proportion of medical men who, at that time, believed in the contagiousness of cholera, I may cite the city of Baltimore, where, in 1832, out of about one hundred and forty physicians, there were not more than two,* besides myself, who acknowledged their belief in the contagiousness of this disease. At present the case is very different. The progress of this pestilence over the United States, as over every other coun-

* Professor Nathan R. Smith and Dr. Richard H. Steuart.

try, presented innumerable facts of an unequivocal character in proof of its contagiousness. Each visitation of the disease, developed, at every step of its march, new facts in favor of this doctrine; and so overwhelming is the evidence which the last twenty-two years have accumulated, that many of the ablest and firmest non-contagionists, have yielded to its force, and candidly proclaimed their conversion.

There is still, however, a large proportion of the medical profession that adheres to the opinion that cholera is not contagious, and that still attributes its progress to "atmospheric influences," "local origin," and a variety of other exploded hypotheses, which have served so long to bewilder and delude the public mind. Every speculation that the most ingenious minds could imagine, has been resorted to by the non-contagionists in their efforts to explain the progressive cause of cholera; but without the least success. Each hypothesis gave way to one equally untenable, till speculation itself became exhausted, and they were at length forced to acknowledge that, after an unremitting investigation of thirty-seven years, they had not been able even to imagine a plausible hypothesis to explain its progress. The hypotheses of "atmospheric intemperament," "local origin," "telluric influence," &c., having been proved utterly irreconcilable with the progressive phenomena of cholera, the great majority of the non-

contagionists, have of late, abandoned all speculation on the subject—pronounced its progress a “mystery”—and found their sole occupation in opposing the doctrine of contagion. Had they succeeded in disproving the truth of *this* doctrine, also, they would then have established the deplorable and humiliating fact, that the mode by which cholera traverses the earth, is indeed a mystery,—and that the combined intellectual efforts of the whole medical world have not been able, in thirty-seven years of unwearied investigations, to shed one ray of light on the subject. But, fortunately for the interests of humanity, and for the credit of the medical profession, they have failed as signally in disproving the truth of the contagiousness of this disease, as they have, in divining any *other* mode to explain its progress.

The question whether cholera be a contagious disease, or whether its propagation be owing to a cause or causes independent of human intercourse, is one of vast importance; for, unless the mode by which it is propagated, can be positively ascertained and established, it will be in vain to hope that its progress can be successfully opposed. Thirty-seven years have now passed, since cholera first made its appearance in India, and during that period there is scarcely a portion of the habitable globe that has not been visited, and re-visited, by this travelling pestilence. Yet strange to say, notwithstanding the vast extent of its travels, and the innumerable

places which it has visited, the mode of its progress remains still as great a mystery to a large proportion of the medical profession, (the non-contagionists,) as it was in the year when it commenced its ravages!

If all those sects that opposed the doctrine of contagion, had candidly avowed their entire ignorance of the mode by which this pestilence diffuses itself over the world,—and had, therefore, consistently abstained from giving *any advice* respecting its prevention,—their speculations on the subject, would have been productive of no direct mischief. But unfortunately, they have not contented themselves with merely theorizing in opposition to the doctrine of contagion. Each non-contagion sect did not scruple to promulgate its unsupported, and oft-reputed hypothesis, in the confident tone of an established truth; and constituting, as these various sects did, the great majority of the medical profession, they have, from the commencement, swayed the public mind, and, with rare exceptions, governed public measures on this most important subject. If it be true that cholera is a contagious disease, it cannot be disputed that the very general prevalence of the opposite doctrine has caused immeasurable evil. The non-contagionists unreservedly denounced quarantine restrictions of every description—and did not hesitate to proclaim, in the tone of professional authority, that there was no danger whatever in communicating with the sick. The antago-

nists, on the contrary, recommended quarantine restrictions in every instance in which such restrictions offered a rational prospect of success; and they emphatically warned the public against exposing themselves, unnecessarily, at the bedsides or in the neighborhood of the sick. If the contagionists erred in giving this advice, they erred on the *safe* side, and were justified in giving it, if there existed nothing more than a *suspicion* that the disease was contagious. That this suspicion did exist, even in the minds of the non-contagionists, will hardly be denied, and how *they* can reconcile the advice which they gave with the grave responsibility that devolved on them as guardians of the public health, it is difficult to conceive. If the views of the contagionists be correct, it is obvious that myriads of human lives have been sacrificed by not acting in accordance with them,—and that it is to the advice and influence of the non-contagionists this immense sacrifice must be charged.

The non-contagionists having had the field almost exclusively to themselves for thirty-seven years, and not having been able, during that long period, to effect any *good*,—either by enlightening the public mind respecting the cause of this pestilence, or by suggesting any measures that could check its ravages,—it is due to humanity, and to a common sense of self-preservation, that the doctrine and views of the contagionists should now be fully and fairly tested. The only general mea-

sures which the non-contagionists ever suggested, to arrest the progress of cholera, were *cleanliness* and *fumigations*;—and an experience of thirty-seven years has clearly demonstrated, in every part of the world, the total inefficacy of these measures. There are but few localities, of the many thousands which cholera has visited, where cleanliness and fumigations have not been resorted to as preventive measures,—and it would be hazarding but little to assert, that not one well established instance can be shown, out of those many thousands of experiments, in which these measures proved efficacious. And yet these are the measures, and the sole measures, which the non-contagionists still persist in recommending, to stop the march, and check the ravages of cholera! The invariable failure of those measures, wherever they have been trusted to, during thirty-seven years, seems to have caused no discouragement to them!—As soon as the disease approaches a city, they raise the cry of *cleanliness!* *cleanliness!* and, in the face of all experience, still delude the citizens with the vain hope, that if the city be properly cleansed, the pestilence will be greatly checked, if not entirely controlled, in its ravages! The Chinese were not more deluded, when they undertook to repel British invasion by the exhibition of ridiculous gymnastics and hideous sounds—a mode of defence which *their* experience has probably taught them not to repeat. Cleanliness is very

beneficial in itself; but, if we may judge from many thousands of experiments, it is just as ineffectual a shield against the assault of cholera, as gymnastics are against British cannon.

The measures which the contagionists have always recommended, and which they still recommend, are widely different from those which have been so long, so extensively, and so fruitlessly employed by their antagonists. They are indeed the *only* measures that now offer any hope of success: if they fail, all human efforts to resist the spread of this pestilence will be in vain, and our sole reliance must be on the mercy of Providence. But that they will *not* fail, and that, when generally and judiciously employed, they will greatly restrict, if not entirely control the ravages of this disease, we find ample assurance in the manifest success which has, in many instances, attended their partial adoption.

In republishing this Essay, I do not consider it necessary to add any of the many thousands of new facts, which can be adduced to prove the contagiousness of cholera. My reason for not doing so, is this:—I have already published in this Essay, twenty-one facts of a positive, undisputed, and unequivocal character; and it appears to me, that the mind which cannot be convinced by these twenty-one facts, cannot be convinced, were I to present to it twenty-one thousand facts of a similar character.

As early as 1832, I became, on reading the history of cholera in India, a decided believer in its contagiousness. Since then, I have never entertained a doubt on this subject ; for, besides my own personal observations, the subsequent history of the disease, has presented, at almost every step of its progress, what has appeared to me conclusive evidence in confirmation of this belief. It was the firm conviction which I felt of its contagiousness, and the vast benefit which I conceived would result to mankind if this truth were generally known, that induced me, at the commencement of my professional career, to oppose the great body of the medical profession on this important question. I had much reason to be gratified at the kind and tolerant reception which the first edition of this little Essay met with, even by those of my professional brethren whose views on the subject were entirely different from my own. I have, for many years, been urged by professional friends to republish this book, and would have done so long since, had not the accidents of army-life prevented it. In republishing it now, I am impelled by the same motive which caused its first publication, viz : to give my humble aid in the promulgation of a truth, the knowledge of which I conceive to be of vast importance to mankind.

*Fort Vancouver, Washington Territory,
September 21st, 1854.*

P R E F A C E

T O T H E F I R S T E D I T I O N .

WHATEVER judgment may be passed, by the profession and the public, on the doctrine advanced in the following pages, and the arguments used to sustain it, I feel assured that an effort to develop *truth*, uninfluenced by the fears of the timid, or the authority of names, must meet the approbation of the enlightened and liberal; even among those who may arrive at different conclusions from myself. The age is passed when the truth, either in law or physics, might be held a libel. It is an admitted maxim in philosophy, that the knowledge of truth is always advantageous, and that error is always baneful. But how often do we hear it asserted, even among members of the medical profession, that the *truth ought not to be told*; that even if the contagious character of cholera were *certain*, it ought to be kept a secret from the public, lest the knowledge of the fact might have an evil tendency! To attempt, at the present day, to refute such doctrine is superfluous. The intelligence of the age revolts at it. Every inquiry into the laws of the moral and physical world, must *now* be judged by the advances

it makes in the discovery of truth ; not as to the expediency of promulgating it.

If the fatal career of this disease is ever to be arrested by human means, it will surely be accomplished by our becoming acquainted with its character, and the laws by which it is governed. And this knowledge must be attained by a rigid scrutiny of the facts presented in its history, and by fearless and open discussion.

Whether cholera be contagious, or in other words, whether it be communicable from one human body to another, is indeed an inquiry of great moment ; and one which ought not to be decided by weight of authority, nor by appeals to popular prejudice. It is a question the importance of which entitles it to the most dispassionate investigation ; for its influence extends not merely to a city, a kingdom, or a continent, but to the whole family of mankind. It becomes us, therefore, to approach it, not in the spirit of angry and intolerant disputants, whose paltry ambition is the triumph of an hour ; but in that temperate spirit of forbearance which ever characterizes the sincere votaries of truth.

The following pages were written with the design of placing before the public an impartial view of the facts and reasonings on *both sides* of this question ; comprised in a small volume, divested as much as possible of technical phraseology, and unincumbered by contradictory and equivocal statements. Such a work, at this time, I

conceive to be a desideratum, to enable intelligent men of all professions and occupations to make their *own* deductions, and form their *own* opinions, on a subject which so nearly concerns them.

It was suggested by some of my friends, that a brief outline of the most approved mode of treatment of cholera, such as might be adopted before medical aid *could* be obtained, would be found useful; especially to those residing in the country. I have yielded to this suggestion, but must accompany it with the most emphatic warning that its adoption should in no degree retard the obtaining of professional assistance.

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CONTAGION IN GENERAL.

It may be well, perhaps, before entering on the question whether cholera be contagious, to make a few observations on the subject of contagion in general. So much has been said about the "laws of contagion," and the "laws of epidemics," that many persons are led to suppose not only that contagious and epidemic diseases are *known* to be distinct, but that each is characterized by well established laws. Such, however, are not the facts: there is no distinction, except a hypothetic one, between contagious and epidemic diseases; nor is there more than one general law by which contagious diseases may be characterized.

Indeed, the words contagion, infection, epidemic, and endemic, are so variously applied, and so often confounded, even by medical writers, that in order to be clearly understood on this subject, it becomes necessary for each one to define the exact import of the terms he employs. To arrive at the best application of those terms, it is neither necessary that we should refer to the folios of antiquity, with a view to discover their original signification, nor that we should be restricted, by the conventional law of common acceptation, to their present

import. Words being but the representatives of ideas, must necessarily change as science advances; so that it is the present, and not the past state of knowledge, that must define our terms.

All diseases may be divided into two classes; *specific* and *accidental*: specific, those which have a *poison* for their remote cause; accidental, such as result from any cause (except a poison) which disturbs the balance of health. My remarks here shall be confined to specific diseases, as they only have relation to the subject.

The class of specific diseases may, as regards etiology, be divided into two orders: *progressive* and *local*; progressive diseases have *animal* poisons for their remote cause, and are all contagious; or, in other words, are communicable, either meditately or immediately, from one human body to another. The poisons which produce progressive diseases are very numerous, and for the most part intangible. Of their origin, and essential nature, we are entirely ignorant; for no chemical test can reach them, and it is only by their effects that we are apprized of their existence. Each one of them is specified by its own distinct laws; and *there is no law common to all of them, except that of communicability*. Even this law is so modified in each disease, that there are no two in which it acts precisely alike. In some it is necessary, in order to communicate the poison, that it should be brought into immediate contact with the body; while in others it may be communicated to a considerable distance through the atmosphere. Syphilis, herpes, gonorrhœa and itch, afford examples of the former;

small-pox, measles, hooping-cough and mumps, of the latter. But it is not merely as regards the distance through which these poisons are communicable that this law differs; it differs also as regards the *power* of communicability. Some of them will affect almost every individual that comes within the sphere of their influence, while others are extremely limited in their action. For instance, small-pox spares but few, while mumps affects but few. There are, in short, as great differences both in the manner and degree in which contagious diseases are communicated, as there are differences in the volatility and intensity of their respective poisons.

The rapidity and extent of their progress are also various, and may be modified by several circumstances: by the degree of volatility and communicability of their poisons, by the facility and extent of human intercourse, by climate, season, &c. When circumstances concur to favor the general and rapid spread of any disease, it becomes, *ipso facto*, an epidemic; and it is strictly in this sense, and not as applied to any particular class of diseases, that I shall employ that term. Small-pox, from its great power of communicability, generally prevailed as an epidemic before vaccination arrested its march; measles and scarlatina are still epidemic, when circumstances favor their progress; while mumps, from its very low power of communicability, never has been, and never can be epidemic. Local diseases, such as bilious, remittent and intermittent fever, are generally epidemic in the fall, that being the season when vegetable decomposition is most favorable to their production.

The term epidemic has been very generally confined in its application to such diseases as are supposed to depend on some morbid constitution of the atmosphere; but for this restriction there is no good reason, especially as no such constitution of the atmosphere has yet been proved to exist. The word epidemic signifies literally, *upon the people*, and, if not perverted in its meaning, should be made to apply to all such diseases as prevail extensively among the people, whether they have their origin in the air, from the earth, or in the human body. When a contagious disease prevails extensively among the people, we may term it a contagious epidemic; when a local disease prevails, it may be called a local or non-contagious epidemic; and should we ever discover an atmospheric disease, we might call that an atmospheric epidemic.

Of that imaginary constitution of the atmosphere, to which the term epidemic has been so generally applied, we are in all respects entirely ignorant; and if such a state exist at all, it must certainly exist in opposition to those atmospheric laws with which we are acquainted. That there are certain conditions of the atmosphere dependent on thermometrical, hygrometrical, barometrical, and electrical changes, which, by debilitating the general system, or destroying the balance of its functions, may render the body peculiarly susceptible of specific poisons, is what few will venture to deny: but that there is an “epidemic constitution of the atmosphere,” which is, of itself, able to produce a *specific* disease, we have not the

slightest evidence to show.* It is indeed a mere dogma, which, under the sanction of high authority, has been handed down from age to age, without being either questioned or understood: and when we come to examine its merits, and find that it is as gratuitous as it is unintelligible, we are at a loss to conceive how, in the present age of inductive philosophy, it comes to be received as an undoubted truth. That men, when unable to explain the progressive phenomena of disease, should have resorted to some unknown cause in the atmosphere, to screen them from their own ignorance, is not to be wondered at; but that others should afterwards have come to view this “airy vision” as a substantial existence, is matter of much surprise.

Those local diseases which sometimes prevail as epidemics, and to which the term endemic† is generally applied, are occasioned by certain poisons generated on the surface of the earth, and diffused to a limited extent through the atmosphere. These, like the poisons of

* Great quantities of insects, unusual weather, the departure of birds, “fevers of extraordinary malignancy,” and a great many other accidental circumstances which occurred in some places where pestilence prevailed, are each and all recorded by different authors, as precursors on which epidemics depend. Such indeed are the facts upon which the whole fabric of “atmospheric epidemics” is built. There is not one general fact in support of the dogma—and as to those partial ones, they can be adduced with much greater force, because with infinitely greater frequency, as the precursors of health!

One of the imaginary laws of epidemics is, that no two of them can prevail at the same time, and in the same place; yet the cholera and the yellow fever prevailed together for weeks, both in New Orleans and Tampico; and with such equal violence that it was difficult to decide which maintained the mastery! *Which* of these diseases was “the epidemic?”

† The term endemic I shall totally discard, as being calculated to cause confusion. Whenever I wish to designate an extensive prevalence of a local disease, I shall do so by calling it a local epidemic.

contagion, are not appreciable by any chemical test; and we are therefore entirely ignorant of their constitution. They are supposed, however, with much reason, to result from some play of chemical affinities produced by the decomposition of vegetable matter; and this will explain to us why it is that they are confined to particular districts, and prevail at particular seasons. The distance to which those poisons, or, as they are termed, miasmata, will spread beyond the sphere of their origin, depends on various circumstances: the quantity of poison generated, and its diffusibility; the condition of the atmosphere, the force of the winds, &c. Under no circumstances, however, is this distance very great, if we may judge from intermittent and bilious fevers, which scarcely ever extend a mile from the place of their supposed origin.

The most obvious distinction between local and contagious diseases is, that the former are only to be found in certain locations, and certain seasons; while the latter may, for the most part, be met with under all possible circumstances of climate and locality. Intermittent and bilious fevers are always limited to certain districts, and to certain seasons; because their poisons, being generated on the surface of the earth, require a concurrence of chemical causes for their production: while small-pox, measles, and all other contagious diseases, deriving their poisons from the human body, are in a great measure independent of climate and locality. Man is at once their victim and their propagator, and so far as his intercourse extends, their travels extend also.

Whenever, therefore, we see a disease go abroad from the place of its origin, we have a *prima facie* evidence of its contagiousness;—for, in the present state of our knowledge, there is no other mode than that of human intercourse, by which the progress of any disease can be accounted for.

It will be perceived from the foregoing remarks: first, that progressive and contagious diseases are considered as synonymous: secondly, that by the term contagious, are designated all diseases which owe their existence to animal poisons; whether those poisons be communicated by actual contact, or through an indefinite extent of atmosphere:/* thirdly, that by the word epidemic is signified no particular class of diseases, but the extensive prevalence of any disease: and, fourthly, that local diseases are not contagious, and therefore are limited to particular districts.

OF THE CONTAGION OF CHOLERA.

It is admitted by all, that cholera has, within the last few years, made its appearance in many thousands of places where it had never appeared before: and it is very evident that it must have visited those different places by progression—or else it must have originated in each place where it has appeared. If it visited them

* I can see no necessity whatever for the word “infectious;” on the contrary, having been so variously applied, and so often confounded, it has become worse than useless; I shall therefore discard it altogether.

by progression, there are but two* modes in which it could possibly have done so. One is, through the medium of the atmosphere, the other, by means of human intercourse. If it originated in each of the many thousands of places where it has appeared, it must have been caused by emanations arising from the earth, or else by some local change in the constitution of the atmosphere. Under one or the other of these four general heads, viz: progressive atmospheric influence, local atmospheric influence, terrestrial emanations, and human intercourse, may be embraced, then, all the various hypotheses that have been, or ever can be invented to explain the diffusion of cholera: and if, on inquiry, it shall appear evident that this disease does *not* diffuse itself by any of the three former modes, we shall then have it negatively established that the last, or that of human intercourse, is the mode by which it does advance. I now proceed to the consideration of each of those different heads in the order in which they stand.

PROGRESSIVE ATMOSPHERIC INFLUENCE.

If we suppose cholera to depend upon some occult poison, which either propagates itself, or is itself propagated by means of the atmosphere, we must suppose, also, that the progress of that poison will be hastened or retarded by the same causes that hasten or retard the

* The idea that it might have proceeded through the earth, so as to have passed beneath the Indian and Atlantic oceans, is too absurd to merit formal refutation.

progress of atmospheric air: and this will be equally true, whether the atmosphere be merely the vehicle of some extraneous poison, or whether it have itself undergone some morbid change. We find, however, that the progress of cholera is totally uninfluenced by any such causes. The most powerful monsoon winds can neither accelerate nor retard its march; nor is there any variety of temperature, or any atmospheric circumstance whatever, between twenty degrees south and sixty-five north, which has been able to extinguish it, or even to modify its character.

It travelled from the sources of the Nerbudda into Bombay, in the teeth of a wind which prevails six months, night and day, with rather more rapidity than it did from Madras to Cape Comorin, where a similar wind was in its favor.* It has proved itself as violent in Russia as in the Mauritius—in Canada as in India. In short, it has presented itself to us in every clime, and under every conceivable circumstance of atmosphere, with all the frightful features that mark its individuality; so that if it have at any time appeared modified in its character, such modification can only be attributed to the different susceptibilities of its victims. Were the fact denied, innumerable proofs might be adduced to show that cholera has, in its progress, paid not the least regard to any atmospheric laws with which we are acquainted. If this disease then propagate itself by means of the atmosphere, and yet be independent of all atmospheric laws, it is reasonable to suppose that, by virtue

* Orton, p. 336, second edition.

of such independence, it would be able to advance with uniform and unimpeded rapidity.—Such, however, is by no means the case. Nothing can vary more than the degrees of rapidity with which cholera travels, at different times, and in different places. It sometimes travels farther in a day than it will at other times in a month ; and generally passes over water with much greater rapidity than it does over land. From its origin, at Jessore, it radiated as from a centre to a circumference, travelling north, south, east* and west, with various degrees of rapidity, until it reached the confines of Asia, in every direction. As early as the year 1820 it visited Canton, situated on the border of the Pacific, and had it travelled over that ocean, with the same rapidity with which it crossed the Atlantic, it must have reached our North Western Coast in 1822, and have visited Baltimore eight or nine years ago ; not as an eastern, but as a western pestilence. But it is now 1833, and the disease has not yet crossed the Pacific ! Why, then, I ask, has it *not* crossed the Pacific ? It has crossed all Asia, all Europe, the Atlantic ocean, and the greater part of North America ; and yet, strange to say, it has not yet crossed the Pacific, although it reached its coast thirteen years ago ! On what atmospheric principles can this question be answered ? It can be answered on no principles except those of contagion. The poison of cholera, owing to its great volatility, soon becomes extinct, and

* It is supposed by many unacquainted with the history of Cholera, that it always travels westward. It took but three years, however, to reach Canton, which lies 1500 miles east of Jessore.

this renders it exceedingly difficult to convey it to any great distance, unless it can be regenerated by new victims. Hence we find that, notwithstanding the extensive intercourse between Europe and North America, there never were but three* vessels suspected of having conveyed this poison across the Atlantic ; and those were so crowded with emigrants, as to have afforded the disease the best opportunity of surviving so long a passage. What chance then could there be for conveying this poison over an ocean ten thousand miles wide, across which there is little or no intercourse, and no emigration whatever ?†

It is also worthy of remark, that this disease has never been able to cross extensive deserts, although the loftiest mountains presented no obstacle to its progress. The deserts of Baloochistan and Chaboul were insurmountable barriers to it, while the Himalaya mountains, 17,000 feet high, did not even check its march.‡

* The brigs Carrick and Royalist, at Quebec, and the ship Brenda, at Baltimore. Upwards of thirty-three thousand passengers arrived at Quebec alone, during that season, and yet there were but two vessels on board which any persons had died of cholera !

† It is now (1854) thirty-four years since the cholera first reached Canton, and yet it has never crossed the *atmosphere* of the Pacific to this day—although since immigration has become very extensive, it generally crosses that of the Atlantic several times a year ! This is certainly another profound *non-contagion* “ mystery !”

‡ Although cholera has repeatedly accompanied, for a few hundred miles, the emigrant trains which annually cross the desert plains on their way to California and Oregon, *it has never yet continued among them till they reached their destination*; and has, consequently, never been introduced by them into either of these countries. If cholera be caused by “*a general atmospheric influence*,” why did not this influence continue on to California and Oregon, after having affected all the emigrants that were susceptible of it ? If it were

Another objection to a general atmospheric influence, may be found in the irregularity with which cholera advances. This disease has never been known to pass over the whole face of a kingdom or a continent, with that unbroken sweep, which must necessarily have characterized any general atmospheric interperament. On the contrary, its march seems to have been uniformly guided by the routes of human intercourse; and has always been as devious and as whimsical as such intercourse might be supposed to have rendered it. It is only necessary to glance at the history of the disease, since its arrival on our own shores, in order to convince ourselves that its main routes are always the great highways of intercourse. Every step it has taken, from Quebec to Chicago, from Detroit to New Orleans, and from Montreal to Baltimore, is in confirmation of this fact.

It is well known that in Canada the great tide of emigration flows from Quebec to Montreal, and that at Montreal it divides into two currents: the one running westward along the great lakes to Detroit, the other southward, by the way of Albany, New York, Philadelphia and Baltimore. Accordingly, we find that these

a *local* disease, what imaginable cause could be assigned for its having found so *many* localities within the *first* few hundred miles, and *not one* locality within the last 1500 miles of the journey? Is it not "mysterious" too that this pestilence should *frequently* occur in the proverbially pure air of those desert plains—and never occur, except by some *intelligible accident*, in any of the most unhealthy *country* parts of the United States! Ought not this single fact of itself, when duly considered, open eyes that have been closed for thirty-seven years?

were the great routes by which cholera advanced. In about two days after its arrival in Quebec, it reached Montreal; leaving the whole district of intermediate country untouched. It then proceeded westward and southward. In its western route, it travelled with great rapidity, visiting in quick succession the principal towns along the lakes; and accompanying the United States troops in their march from Buffalo to Detroit, from Detroit to Chicago, and from Chicago to St. Louis. It likewise followed the current of emigration into Ohio, and visited the principal towns in that State; leaving Pennsylvania behind it. After having reached Cincinnati, it travelled with unparalleled rapidity, down the waters of the Ohio and Mississippi, till it arrived at New Orleans; leaving behind it many towns which it afterwards visited.

In its southern, as well as in its western route, it moved steadily along the great highways of intercourse; first visiting the large cities, then radiating among the smaller towns and villages, but never diffusing itself among the country houses. From Montreal it travelled to Albany in a few days, and reached New York about the same time; leaving in its rear, totally untouched, all the New England States, and nearly the whole of the vast State of New York. After having reached New York, it visited, in pretty quick succession, Philadelphia, Baltimore, Washington and Richmond; leaving many of the inland towns of Pennsylvania, Maryland and Virginia unaffected. It visited a few places in North

Carolina, and having advanced as far as Folly Island, it there terminated its southern tour.*

Such is a brief outline of the progress of cholera over the bosom of our own country; and it will be perceived that in it, as in all other countries, the great channels of human intercourse were the main routes by which it advanced. Its movements were indeed like those of an invading army: having once obtained a foothold on our shores, it next advanced, by forced marches, on our principal cities; and having ravaged them, sent detachments in all directions to attack the smaller places in detail.

And now let me ask, by what atmospheric laws, either real or *imaginary*, shall we be able to explain these facts? Is it not entirely inconceivable how any atmospheric cause, so general as to have traversed two-

* In all its subsequent travels in the United States, which have been very extensive, cholera has exhibited the same characteristics that it did on its first visitation, in 1832. The great routes of human intercourse have uniformly been the main lines by which it has *first* diffused itself. The Mississippi river has been always its greatest thoroughfare—next, the Ohio river, and then other navigable rivers, in a degree generally commensurate with the amount of travel that prevails on them. It has occurred on several occasions since 1833, that nearly every town bordering on the Mississippi, between St. Louis and New Orleans, was ravaged by this disease, at the same time that the inland towns, villages, country residences and *unnavigable* rivers—as far east as the Atlantic, and as far west as the Pacific—were almost entirely exempt from it. It is now upwards of twenty years since the cholera first visited the United States, and yet a single case of it has never occurred in any part of East Florida, which is 400 miles long, and 150 miles wide! What an impenetrable “mystery” must this be to the non-contagionists! The contagionists, however, find no difficulty in revealing it, simply by stating the fact that the Peninsula of Florida lies south of all the main lines of travel, and has hitherto had comparatively but little intercourse with the more populous portions of the Union. It has escaped this pestilence for the same reason that Oregon has escaped it, and that about ninety-nine out of every hundred *country* houses on the continent of North America, have escaped it.

thirds of the habitable globe, should yet be so partial as to choose particular routes, and to overstep particular districts? But even admitting it possible, that any atmospheric influence could, at one and the same time, be so general and so partial, would it not still be a mystery that this partiality should be so uniformly directed to the thoroughfares of *men*? Why, for example, should this atmospheric poison have advanced with so much greater rapidity in the routes to Baltimore and Detroit, than in any other direction? Was it because it could find no victims in the direct course, through the states of New England, that it chose the circuitous route by Albany? Was it not just as likely to have advanced along thousands of other different lines, as those along which it did advance—and if so, is it not wonderful that it should have chanced to travel along the only two in which the intercourse was great? Was it not just as likely to have pervaded the country, as to have visited the towns; yet who will assert that it did so? Although it may now be said to have made the grand circuit of North America, having travelled from Quebec to New Orleans, and from Baltimore to St. Louis, I will venture to assert, that in all the vast regions through which this pestilence has passed, there is not a single county to be found over which it has prevailed as an epidemic.*

* Cholera has sometimes made dreadful devastations in the country; but always in so partial a manner as to preclude the idea that it depended on what is termed "an epidemic state of the atmosphere."

It has frequently swept ten or twenty persons off a single plantation, while all the circumjacent plantations, although similarly circumstanced, have *entirely escaped*.

The few cases that occurred in the country parts of the state of Maryland were traced, (so far as my information extends,) in almost every instance, to infected places; and were never known to extend beyond the immediate circle of attendants.* What atmospheric cause can be assigned, then, for this undisputed fact? Will it be said that the pure air of the country was able to modify, or neutralize this atmospheric poison? Why, then, were the pure and impure parts of the country equally favored by it? Why were the marshy districts of the Eastern Shore just as free from cholera as the healthy highlands of Frederick county? Why was the disease just as malignant, wherever it did appear in the country, as it was in the filthiest parts of the filthiest cities? Why was it not modified or neutralized by the pure sea breezes, that wafted the ship Brutus over the ocean wave, when one hundred and seventeen of her passengers were attacked, and seventy-nine cut off, in the short space of ten days?

I might, did I conceive it at all necessary, multiply facts and arguments on this subject; but what I have already stated will, I trust, be sufficient to satisfy every unbiassed mind, that the hypothesis of a progressive atmospheric influence is utterly untenable. It is not only a baseless assumption, without either fact or analogy to sustain it—but it is an assumption to which a multitude of well established facts are directly opposed.

* I do not, of course, include those cases which occurred on our rail-roads, canals, and other public works, where the disease was so generally destructive.

LOCAL ATMOSPHERIC INFLUENCE.

The facts presented in the progress of cholera, having been found totally irreconcilable with the assumption of a progressive atmospheric influence, it became necessary for the non-contagionists, either to contend for the local origin of this disease, or else abandon all speculations on the subject, and acknowledge their entire ignorance of its mode of diffusion.

Many of them adopt the latter course, and admit, with no less modesty than candor, that although the disease has now formed a chain of twelve thousand miles in extent, they are entirely ignorant of the manner in which a single link has been formed.

Others, however, pertinaciously contend for its local origin; and undertake, by a variety of hypotheses, to account for its appearance.

One of these sects assumes some local change in the constitution of the atmosphere, which is said to occur in the thousands of places where cholera appears. But even this sect is greatly divided in opinion as to what that change is: some attributing it to "a certain electrical condition;" others to clouds of animalculæ; others to some modification in the rays of light; and others to something else equally gratuitous and unintelligible. Unfortunately for all these hypotheses, the poison of cholera has manifested itself under every conceivable circumstance of atmosphere, without any appreciable

difference in its malignancy. It is true, it has prevailed extensively in some places during the occurrence of excessive rains ; but then, it has prevailed in others during periods of excessive drought. In some places, its ravages have been accompanied with unusual heat ; in others, with unusual cold. Large quantities of insects have sometimes accompanied it ; at other times they have not. Indeed, it must appear evident to every one, at all familiar with the history of cholera, that those circumstances, set down as being necessarily connected with its production, have been merely accidental concomitants—such circumstances as every day occur in places where cholera does not appear, and such circumstances as have been occurring for centuries past, without producing the disease.

TERRESTRIAL EMANATIONS.

Did cholera depend on emanations from the surface of the earth, it is impossible to conceive how those emanations should be precisely the same under every variety of climate and locality. Being generated on the surface of the earth, they must owe their formation to some play of chemical causes ; and must consequently be influenced, more or less, by every chemical circumstance. We could not, then, expect to find the same chemical result in the snows of Russia as in the sands of Arabia ; nor on the tops of the Himalaya mountains, as in the

marshes of the Ganges ; and yet cholera has been precisely the same in those, as well as in all other places. Besides, if the same result can be produced in all places, and under such opposite circumstances, why is it not also produced at all *times*? why should a chemical effect, so common as to have occurred in thousands of places, during a single year, never have happened, even once, during so many centuries before ?

Some contend that the poison is generated in the bowels of the earth : but this hypothesis is as gratuitous and as untenable as the last ; and the same arguments that refute the one, apply with equal force against the other.

An answer to all speculations on the local origin of this disease, may be found in the fact that it has travelled from Jessore to Moscow, from Moscow to Quebec, and from Quebec to New Orleans, by *one continuous chain of posts*; thus rendering it impossible that it could have depended on local origin of any kind. If cholera depended on local origin, its appearance in one place, could have had no necessary connection with its appearance in another :—it was as likely, for example, after it broke out in Quebec, to have next shown itself in Cincinnati, or in Buenos Ayres, as it was to have appeared in Montreal, or Albany ; but we find that instead of occurring unconnectedly in different places, it formed, link after link, an unbroken chain of more than twelve thousand miles in extent ; and thus proved to demonstration, that it is a progressive, and not a local disease.

Cholera then is a progressive disease, and has been

already proved not to travel through the atmosphere.* How then does it travel? There is but one way left;—and that is by means of human intercourse.

Having now, I trust, established, by negative proof, that cholera is contagious, I next proceed to the consideration of such general facts as will afford positive evidence of the same truth.

HUMAN INTERCOURSE.

When we reflect on the utter impossibility of reconciling the progress of cholera, with any one of the many hypotheses which the non-contagionists have devised, we cannot be surprised that they should have exclaimed : “ Its march is a mystery, and its ways are inscrutable ! ” To *them* it is indeed a mystery ;—for although it has now been sixteen years travelling, and has, in that time, pervaded three continents, and crossed two oceans, they are still unable even to imagine how one step of this vast journey has been accomplished ! To the mind of the contagionist, however, the progressive phenomena of this disease present but little mystery ; its movements are, to him, at least as intelligible as those of scarlatina or measles ; and if he be not able to trace it through all

* Although cholera has now (1854) been thirty-seven years travelling, the non-contagionists are just as ignorant of its mode of progress, at this time, as they were in 1817, when it first made its appearance in Jessore ! Is there any hope that *they* will ever shed light on this subject ?

the secret windings of its invisible march, he is nevertheless convinced, that he knows the *mode* of its progress. In order to explain this progress, and to divest the subject of nearly all its mystery, he assumes but three propositions; each one having innumerable facts to establish its truth.

First: *that the poison of cholera is communicable from one human body to another.*

Secondly: *that it is extremely subtile and diffusible in its nature.*

Thirdly: *that, in a large majority of cases, it is incapable of developing disease, unless assisted by an exciting cause.*

Of the cause, or causes, that first gave rise to cholera we know nothing; nor is it probable that we ever shall. In this respect, however, we are no more ignorant, in relation to it, than we are to many other diseases. Of the origin of small-pox, measles, scarlatina, and other specific poisons, we are equally ignorant; for, being inscrutable in their nature, it is only by their effects that they are at all appreciable. But however ignorant we may be of the circumstances that first produced the poison of cholera, it is very certain that, when once produced, it possessed the power of reproduction. The truth of this must be obvious to all: for, whether we view this poison as residing in the atmosphere, the earth, or the human body, it is equally impossible to conceive that that quantity which was first generated at Jessore could have been diffused over three continents, and yet every where have maintained its original inten-

sity. The question then arises, where is this poison reproduced: in the atmosphere, the earth, or the human body? For neither of the two former sources have we any known prototype; for the last we have many:—we do not *know* of any poison which reproduces itself either in the atmosphere or in the earth; but we do know of many which reproduce themselves in the human body. The rational inference then is, that the poison of cholera also reproduces itself in the human body: and this inference must stand unshaken, unless there be, in favor of atmospheric or terrestrial reproduction, direct evidence which is *stronger* than that in favor of reproduction in the human body. But having already made it appear that there is no evidence whatever in favor of either of the former, it now only remains to produce some positive facts in support of the latter, in order to demonstrate its truth.

The positive facts in favor of the contagiousness of cholera may be considered under two heads—*general* and *particular*.

GENERAL FACTS.

Were I to adduce all the general facts which serve to establish the contagiousness of cholera, it would swell this little treatise far beyond the limit assigned to it. I shall therefore confine myself to the consideration of the following five:

1. *Its power of progression.*
2. *The continuous line of posts by which it travels.*
3. *The irregularity of its progress.*
4. *The preference which it manifests for those routes in which there is the greatest intercourse.*
5. *The irregularity of its periods of increase and decline in the different places which it visits.*

First: One of the most striking views which cholera presents in favor of its contagiousness, is its power of progression: for while it is obviously true that all contagious diseases are progressive, it is by no means established that there is any progressive disease which is not contagious. We are told that influenza and some other progressive diseases are not contagious, and that their progress is dependent on an epidemic constitution of the atmosphere; but of the truth of this assertion we have no proof. On the contrary, influenza, in common with all other progressive diseases, is totally regardless of those atmospheric laws with which we are acquainted. Not even the most powerful winds* can either hasten or retard its progress; nor are we able to appreciate any atmospheric circumstance whatever, that can modify its character. Besides, there are numerous facts of a positive nature to prove its contagiousness.†

2. Were cholera any other than a contagious disease, it would be impossible to assign a reason for its visiting all the large towns by forced marches, and afterwards ravaging in detail the smaller places which it had over-

* Good's Study Med., vol. ii. p. 294. † Idem, vol. ii. p. 298.

stepped. Yet this is the manner in which it has proceeded through every country. For example, having arrived in Quebec, it made but one stage to Montreal, although there were several intermediate towns which it afterwards visited. Now what reason can be assigned for this preference to Montreal, over several other places which lie nearer to Quebec? Shall we be told that Montreal, being a large, populous, and filthy city, afforded the best entertainment to this voracious stranger? Admitting this to be true, still it will not in the least explain the difficulty. Montreal yielded it thousands, the intermediate towns yielded it hundreds of victims; why then did it pass the hundreds by, in order to seize the thousands—and why did it then turn back and seize the hundreds? Besides, if this disease visited those places first where it was best entertained, it should certainly have visited Havana and New Orleans long before it visited Montreal. These facts, which to the mind of the non-contagionist are so perfectly inexplicable, present to the contagionist not the slightest difficulty. On the contrary, seeing in them nothing more than the ordinary manifestations of a contagious disease, he views them as so many clear and satisfactory evidences of the truth of his doctrine. He can readily understand how a contagious poison might have been conveyed either by the body or the clothes of a person travelling from Quebec to Montreal, without affecting in the slightest degree the intermediate towns: and how this poison, after it had become generally diffused in that large city, might afterwards have been conveyed

to the circumjacent towns, whose intercourse was less extensive.

3. The irregularity with which cholera advances, although entirely uninfluenced by the winds, can be reconciled with the doctrine of contagion only. This irregularity may be marked, not only in its excursive and capricious routes, but also in the different degrees of rapidity with which it marches. Did cholera move over the face of a country with such unbroken regularity as to be only influenced by changes of wind, it would be a strong fact against the idea of its contagiousness. Or did it, on the other hand, present itself only at distant and unconnected points, we should still have much reason to doubt that its progress depended on human intercourse; for we should have, in the one instance, a manifestation of some general vitiation of the atmosphere, and in the other, a fact in favor of local origin. In neither of these modes, however, does the disease advance. It advances by distinct steps of various length, but all so connected as to form consecutive links of innumerable chains, which extend themselves towards every point, without observing the least regularity in their course. There is nothing which these chains so much resemble, both in length and irregularity, as the lines of human intercourse:^{*} and if we can only admit

* Is it not a most striking fact in favor of the contagiousness of cholera, that in crossing a sea it always travels in a single line, and that line so narrow as to touch but a single city; whereas, in crossing a continent, it travels in thousands of lines? It crossed the Atlantic, for example, in so narrow a line as only to have touched Quebec, yet how many lines has it formed, and how many cities has it touched in crossing the western continent?

that cholera may be contagious, we shall find but few mysteries to expound in the whole history of its progress. But if on the other hand we deny its contagiousness, we shall find a mystery in every step which the disease has taken between Jessore and New Orleans. Its whole course will indeed present a concatenation of mysteries, upon no one of which have the speculations of fifteen years shed a ray of light.

In the irregularity of its speed, it also bears a close resemblance to the movements of man: sometimes fast, sometimes slow, it travels, in short, at every rate within the limit of human speed, but *never transcends it*. It crossed Europe with much greater rapidity than it did Asia—so does man. It traversed this continent more rapidly than it did Europe—so does man. It took thirteen years to travel from Jessore to Moscow; two years from Moscow to England; and but one year from England to Chicago!

By water it generally travels with much greater rapidity than by land—so does man. It crossed the Indian ocean to visit Mauritius two years before it reached Ispahan, although the latter lies several hundred miles nearer to Jessore. It took thirteen years to travel from Jessore to Moscow,* a distance of 4,000 miles; and occupied but nine months in crossing the Atlantic, which is 3,000 miles wide!† It travelled along the lakes to

* See Kennedy's Map.

† The cholera did not reach England till October, 1831; and if we even suppose that it travelled through the atmosphere, it could not have occupied more than nine months in crossing the Atlantic; as it arrived in Quebec in June, 1832.

Detroit with the speed of a marching army; and hastened down the Ohio and Mississippi rivers to New Orleans with the rapidity of a steam-boat. It is, in short, an admitted fact that this disease has, in every country, travelled along the course of *navigable* waters with marked rapidity. This I say is an admitted fact; and now let me ask, how the non-contagionists will account for it? Will they tell us that its progress is favored by the malaria arising from water-courses? If so, how happens it that its progress is favored by no waters except those which are *navigable*?* Why is it, too, that its progress, instead of being retarded, has been very much hastened by the pure air of the Indian and Atlantic oceans? Verily, this doctrine of non-contagion is one of deep mystery! The contagionist dispels this mystery, however, by simply stating that he who is attacked with cholera, while travelling by land, will stop at the first stage; and the disease will be there arrested: while he who travels by water will have no stopping place short of his destination; and the disease will consequently continue to travel with all the speed of a fast sailing ship. Indeed, the simple fact that man travels more rapidly by water than he does by land, is in itself a satisfactory explanation.†

4. The next, and perhaps the most striking fact in favor of its contagiousness, is the preference which cho-

* There is no instance, in this country, in which cholera has travelled along the banks of an unnavigable stream.

† There is ample evidence to show that since railways have come to form the principal lines of communication through the United States, the speed with which cholera reaches distant points has been greatly accelerated.

lera manifests for those routes by which there is the greatest intercourse. It will be unnecessary, in this place, to revert to the history of cholera with a view to establish the truth of this fact, as it has been already sufficiently considered when treating of the dogma of atmospheric influence. It is a fact, indeed, which none have ventured to deny, for it is one which strikes the observation of every man who pays the least attention to the progress of the disease. It is true that cholera has sometimes stepped aside from the more populous routes, to pursue those in which there was a less degree of intercourse: * such deviations as these, however, have been exceedingly rare; and certainly not more frequent than we might have anticipated, had we considered the many accidental circumstances that may influence its progress. But that the great thoroughfares of men are the great highways by which cholera advances, is what no man, who even glances at its history, will doubt: and now, I ask, if this indisputable fact does not afford a *prima facie* evidence that the disease travels by means of human intercourse? What general fact *could* be stronger to prove the truth of this proposition? I know of none. This is one of those facts which need not the aid of argument—but which speak for themselves, and carry with them such intrinsic conviction as no sophistry can shake.

5. The last general fact which I shall notice, is the

* In those instances where cholera has made excursions of this kind, it has seldom proceeded more than one stage before it resumed its original route; thus proving that some accident had diverted it.

irregularity of its periods of increase and decline, in the different places which it visits. The diffusion of this disease is always gradual, and the time which it takes to reach its acme in a place, is generally equal to that which it occupies in its decline. This time is much longer in large towns than in small ones; and longer in small towns than in camps, jails, alms-houses, and other crowded assemblages of men. When cholera enters a city, say of a hundred thousand inhabitants, it generally commences its ravages in a single house. In two or three days it appears in several other houses in and about the same neighborhood. To this neighborhood its ravages are almost exclusively confined during the first six or eight days of its visitation.* After this period, however, it begins to show itself simultaneously at several different, and sometimes distant points of the city, without evidencing the least regard either to topography or cleanliness. These points go on multiplying every day, in a geometrical ratio, till at length there is scarcely a street or alley in the whole city where several have not appeared. After having thus, in about four weeks from its incursion, laid a wide foundation for its ravages, the work of death goes on with frightful rapidity

* The ravages of cholera on its first incursion are also very generally confined to a particular class of people; sometimes to the highest, but most frequently to the lowest. This fact seems to depend on the very limited intercourse which subsists between the higher and lower grades of society, which causes the disease to be confined to that class into which it may have chanced to be first introduced. The lower classes are very generally first attacked, and for the obvious reason that they form by far the most numerous portion of society. As soon, however, as the poison becomes generally diffused, all grades are alike obnoxious to its influence.

till the disease has reached its acme. This generally happens about the fifth week; from which period it begins gradually to decline, and at the expiration of five weeks more is generally extinct. This is the mode in which cholera proceeds in the larger cities. In the smaller towns (of from three to four thousand inhabitants) it increases and declines in a similar manner, but the period of its duration is much shorter, being seldom more than five, or less than two weeks.

In large bodies of troops, in jails, in alms-houses, and, in short, in all condensed crowds of men, this pestilence does its work with frightful despatch: sometimes requiring but eight days to run its whole course, and, in that time, sweeping off one-third of the number exposed! In less than eight days twenty thousand persons were cut off while celebrating a religious festival on the banks of the Ganges! In the army of the Marquis of Hastings, consisting of ninety thousand men, nine thousand fell victims in the space of twelve days! In the Philadelphia jail, although the deaths altogether did not amount to sixty, forty-five of them occurred in one day! It is unnecessary to multiply examples of this kind, for every one who has paid the least attention to the history of cholera must have observed, that it increases and declines with the greatest rapidity where its victims are most crowded.

Such is the manner in which cholera generally proceeds in the different places which it visits. There are, however, many circumstances by which its course may

be materially modified.* The season of the year, the density of population, the habits of the people, the municipal regulations, and various other circumstances may have much influence in determining the period of its duration, as well as the extent of its ravages. For instance, in Calcutta, which contains a population of six hundred and fifty thousand, it continued its ravages for six months; while in Brussels, and Boston, and several other towns where all the sick were promptly removed to hospitals—the disease disappeared after a few days.

It is, indeed, sometimes cut so short in its career as not to extend beyond the members of a single family. This was the case in its first visit to New Haven, and this is almost invariably the case when it visits the country.

A brief review of these facts will enable us to perceive that contagion is the only doctrine with which they can be reconciled: The diffusion of this disease in a place is always gradual, and the time it takes to reach its acme is generally equal to that which it takes to decline. Supposing, then, that it depended on the vitiation of the whole atmosphere of a city, would its diffusion be gradual? Certainly not. Its influence would be felt at once—in every part of that city, and its first sweep would, from the greater number of the susceptible, be the most mortal part of its career.

But we are told that this general vitiation may go on

* Although the poison of cholera is always the same, its ravages may nevertheless, be indirectly influenced by such circumstances as will tend either to increase or diminish the number of the susceptible, and by such conditions of the atmosphere as may be more or less favorable to its diffusion.

gradually* increasing in intensity, till it shall have reached its highest point of malignancy; and that it may then gradually diminish, until it becomes entirely extinct. Were this the case, however, the disease itself should also increase and diminish in malignancy; yet such was nowhere the fact. In every town where

* The unusual prevalence of intestinal affections which chanced in *some* places to precede the incursion of cholera, is claimed by the non-contagionists as a fact in support of this hypothesis! To be of any value, however, such a fact as this ought to be, if not universal, at least general in its occurrence. But so far from this being the case, there is not a town out of twenty of those which cholera has visited, in which any such precursor has been witnessed. Even in several of those places where cholera was preceded by intestinal affections, there is sufficient evidence to show that there was no relation between the diseases. In Philadelphia, for example, the intestinal affections which had been prevailing there for some time, had so completely died away, two weeks before the incursion of cholera, that "out of one thousand patients in the alms-house, there were not four who labored under intestinal affections of any kind." Indeed, the deluded citizens were congratulating themselves on the "mild form in which the pestilence had passed over them," but three days before its arrival! In Baltimore, too, those affections, instead of becoming more and more aggravated as the cholera approached, had almost entirely subsided when it arrived.

But there is one fact which sets this whole matter at rest. It is, that the "Cholerine," as it was termed, prevailed in the country just as much as it did in town—while it is a notorious fact that cholera did not prevail at all as an epidemic in the country. This needs no comment.

The ordinary intestinal affections which prevail during the summer months, to a greater or less extent in almost every climate, sometimes become so aggravated by thermometrical and other atmospherical changes, as to assume an unusual degree of prevalence. Such was the case in several parts of this continent in the summer of 1819, as well as in that of 1832; and such is the case occasionally in every country. Would it be surprising then if cholera, in making so extensive a tour, had chanced to visit many places while suffering under an aggravation of those affections? It would certainly be surprising if it had not. It is preposterous then to assert, because cholera did visit some places under these circumstances, that it must have had a necessary connection with the prevailing disease. Others were just as reasonable, who inferred that cholera was necessarily connected with the unusual rains, the unusual heats, the unusual rays of light, the unusual quantity of insects, and a great many other unusual things which chanced to prevail in some places when the disease made its incursion.

cholera has appeared, the first cases and the last were just as malignant as those which occurred at any other period; so that the terms "increase and decline" have nowhere had application to its malignancy, but simply to the number of its victims. But even were this hypothesis true, still it would not explain to us why this vitiation, after it had reached its highest point of malignancy, should be so gradual, and so partial in its manifestations; since it must necessarily have prevailed in all parts of the city at the same time. But again, this time is generally much longer in large towns than small ones, and longer in small towns than in camps, jails, alms-houses, and other crowded assemblages of men. Now, let me ask what reason can be assigned for those differences in *time*, if the disease depend on a vitiation of the whole atmosphere of a city? Would not the poison be brought in contact with all the citizens of Calcutta, where the disease continued six months, just as soon as it would with all those of Fredericktown, where it remained but five weeks? Would not all who were susceptible be simultaneously exposed, and simultaneously cut off, whether they were scattered over ten square miles, or confined within the precincts of an alms-house? Why then should this disease continue longer in a large city than in a small town, or longer in a small town than in an alms-house? Besides, cholera is just as malignant at first, as it is at any other period:*

* It is supposed by some, indeed, that the first cases are the most malignant. But any differences of this kind are merely accidental, and may be accounted for by referring to the different susceptibilities of the victims. See Orton, p. 449.

the susceptible are at once exposed to its influence: why then has it any period of increase—and why is not its first onset the most mortal part of its career? It is unnecessary to pursue this point further; for it must appear evident that cholera cannot depend on any gradual vitiation of the atmosphere, since there is no gradual increase in its malignancy; and it is equally certain that it does not depend on any general vitiation, since it is gradual, and partial in its diffusion.

What then does cholera depend on? May its movements in a city be reconciled with the idea of local origin?*

If it depend on local origin, it must either be generated at a single point, and from that point diffused through the atmosphere to every other part of the city, or else it must be generated at many points. If at a single point, it will be necessary to assume, that by some fortuitous concurrence of circumstances, a poison precisely similar to that which was produced at Jessore in 1817, was again produced in Baltimore in 1832. This will certainly be assuming something very wonderful; for it would be strange, indeed, that a concurrence of causes, so rare as never to have happened throughout all ages, and all countries, till 1817,† should have again

* Having already treated on the doctrines of "atmospheric influence" and "local origin," it may appear superfluous to offer any further refutation of them. It must be observed, however, that my remarks in this place, are entirely restricted to the operations of cholera within a certain sphere: and that there are many persons familiar with its movements within this sphere, who are but little acquainted with its general history.

† I am aware that some contend for the earlier origin of this disease, but we have the most conclusive facts to show that they have mistaken the local cholera, and other diseases, for the pestilence in question.

happened in the year 1832; and especially in places so different as Baltimore and Jessore. But admitting that an event so marvellous did occur, in a certain part of Baltimore, (say Ruxton lane,) still we shall find it no easy task to account for the subsequent diffusion of this poison over the rest of the city. In attempting this, we must first suppose that the quantity generated in Ruxton lane was sufficient to contaminate all Baltimore; for its effects were manifested in the most distant suburbs. We must next suppose that its diffusion through the atmosphere had no power to diminish its intensity; for it was just as malignant in one place as it was in another: and even after assuming these data, we shall still be at a loss to account for the *manner* of its diffusion. It is impossible to conceive how a poison, diffusing itself from a single point, should overstep whole streets, so as to appear simultaneously at points more remote from its origin. It is likewise impossible to conceive how this poison, after it had become extinct at its source, should still prevail with unabated malignancy in other parts of the city. Yet such was undoubtedly the case with cholera. For, more than two weeks after this disease had entirely ceased in Ruxton lane, it swept off whole families in the eastern and western sections of the city.

Shall we, then, in order to obviate all these difficulties, presume that this poison originates at *many* points? By doing this, we may, it is true, obviate some of the difficulties, but then we shall, at the same time, increase very much the number of miraculous coincidences. For if, as already stated, it be so very strange that that for-

tuitous concurrence of circumstances which never happened before the year 1817, should have again happened in Ruxton lane in 1832, what must we think when we find similar events occurring, not only in Ruxton lane, but in every lane, in every street, nay, in almost every house throughout the widely extended city! And all this, too, under circumstances the most dissimilar, so far as we are able to appreciate them. In North Charles street, in Lexington street, in Fayette street, in short in all the cleanest and most respectable streets in Baltimore, precisely the same causes must have concurred—(for the same effects were produced) as in Ruxton lane, in French alley, and in other places remarkable for their filth. Whoever could believe in such a chain of wonderful coincidences, as this view of the subject presents, and at the same time disbelieve in any other miraculous event—would certainly deserve to lose his character for consistency.

It must appear evident from the foregoing facts, and observations, that neither the hypothesis of a general atmospheric vitiation, nor that of local origin, can be reconciled with the particular movements of cholera after it has entered a city, any more than with its general progress when traversing a continent: and it now only remains to be seen how far these movements may be reconciled with the doctrine of contagion.

The different attributes with which the poison of each contagious disease is endowed, must lead us to expect corresponding differences in the mode of its progress. If a poison be extremely volatile, it will spread, of

course, with greater rapidity than one which is less so ; if its power of communicability be strong, it will affect a greater number of persons than one whose communicability is weak : in short, we must expect to find as many varieties in the manner in which contagious diseases are communicated, as there may be supposed specific differences in their respective poisons. The attributes of cholera poison, which induction justifies us in recognizing, have been already stated ; and by keeping them steadily in view, it will be found that there are but few of its progressive phenomena that may not be satisfactorily explained. But even should there appear many facts, in the progress of this disease, which the contagionist could not account for, this would be but a feeble argument against the truth of his doctrine. We should, on the same ground, reject the contagiousness of measles, scarlatina, and other diseases, many of whose phenomena are quite as inexplicable as any of those of cholera. Indeed, if we permit ourselves to reason in this manner, we must reject the truth of every science—since there is not one which is understood in all its details.

Cholera, after it enters a city, first makes its appearance in a single house :* and this is precisely what we

* We have some vague reports that cholera has broken out at once over a whole city, but they have no foundation in truth. It sometimes happens that the disease has been secretly spreading about a city, for eight or ten days, before the board of health thinks it prudent to publish it ; and this affords us one reason for such reports. But besides this, it frequently happens, that the common intestinal affections of the country are mistaken for the foreign cholera ; especially by those who find it to favor some particular theory. I know some physicians of great eminence who fancied they saw cases of the disease in Baltimore, at least six months before it arrived at Quebec.

should expect of any contagious disease. Were it to show itself in a great many houses simultaneously, it would be a strong fact against its contagiousness: for it would, in that event, be much more rational to attribute it to the operation of some general cause, than to suppose that it had been introduced accidentally into so many places at one and the same time. It is also in accordance with our views of eontagion, that the neighbouring houses should be the next to suffer from the ravages of the disease. For, besides the free intercourse which generally subsists between neighbors, and whieh consequently renders them more liable to eontagion than those who reside at a distance, the faet may be sufficiently aecounted for by the great volatility of the poison. Whoever has experienced the effluvium proceeding from the goats that frequent our streets—and whieh may sometimes be smelt at the distance of at least one hundred yards, can have but little diffieulty in conceiving how a subtile poison, emanating copiously from one or more human bodies, may contaminate the atmosphere of a neighborhood. If the different effluvia, proceeding from the hare, the fox, the ferret, and the goat, were capable of produeing specific diseases, eaeh one would be eommunieated at a different distance:—those proceeding from the hare, the ferret, and the fox, would only be contracted by close approximation; while that from the goat would be eommunieated across a street, if not at a much greater distance.

That the disease should, after the first six or eight days, begin to show itself simultaneously at several

different, and sometimes distant points of the city, without evidencing the least regard either to topography or cleanliness, is another very striking feature in favor of its contagiousness. It must necessarily happen, that in the space of six or eight days from the incursion of cholera, many persons, residing in different parts of the city, will have been exposed to the influence of its poison. This will result not only from the number whom friendship, duty, or curiosity* may have led to visit the abodes of the sick, but also from those who may have breathed the atmosphere of an infected district. In several of the persons thus exposed, the disease will, of course, be developed, and the residence of each will form a new point, or focus, from which the poison will be radiated. After these points have become very numerous, and a great many deaths have occurred, there will be scarcely a neighborhood in the whole city whose atmosphere will not be more or less contaminated, and whose inhabitants will not be, in some degree, charged with the poison.†

This is the mode by which the disease reaches its acme; but the extent of its ravages will depend on circumstances which demand particular consideration. It will depend, first, on the general susceptibility of the inhabitants: secondly, on the number exposed to the poison: and, thirdly, on the prevalence of exciting causes.

* Hundreds of non-contagionists visited Ruxton lane for the sole purpose of "seeing the cholera!"

† This will account for that *mal-aise* which is experienced, in a greater or less degree, by almost every individual during the prevalence of cholera.

1. It has been already observed that this poison is, in a large majority of cases, incapable of developing disease unless assisted by an exciting cause. Those instances in which it appears of itself to produce disease, very generally occur in persons of weakly and unsound constitution; or in those who have been much exposed at the bedsides of the sick, where we may presume the poison is most copious and concentrated. It is true, we sometimes meet with persons of sound and vigorous constitutions in whom this disease is suddenly developed, without any apparent exciting cause, or even premonitory symptom; such cases, however, are exceedingly rare, and when they do occur, it is generally in the wards of a hospital, where it is more than probable that excessive fatigue, mental depression, or some inappreciable irregularity of the corporeal functions may have assisted in producing them. Certain it is, however, that in a large proportion of those attacked by cholera, the disease may be traced to an exciting cause; and had such cause been avoided, we have every reason to infer that the disease might have been avoided also.

It appears, then, that the system of each individual possesses, in a greater or less degree, the power to resist this poison; and it is a deficiency of this resisting power to which we apply the term susceptibility. When the susceptibility is very great, or, in other words, when the resisting power is very weak, the poison will, of itself, be able to develop the disease. But if, on the other hand, the resisting power be great, the system will be able to repel (perhaps eliminate) the poison: and it is

only by the coöperation of an exciting cause that it can at all disturb the balance of the system, so as to produce disease.

A general susceptibility may result from the long duration of excessive heat; from exposure to marsh-miasmatic poisons, or impure air of any kind; from a want of nutritious food; or, in short, from any general cause which tends to debilitate the system. In India, we are informed that the natives are much more susceptible of this disease than the European residents; and that those Europeans who have been for some years in the country, are more susceptible than those who have recently arrived. These differences seem clearly attributable to the enervating influence of that climate, which, by debilitating the system, proportionally increases its susceptibility to disease.

In Great Britain, in Germany, and indeed in every country whose climate is temperate, and whose inhabitants are healthy and robust, the ravages of cholera have been comparatively limited. The deaths in London, in Hamburg, and in Moscow, were by no means so numerous, in proportion to population, as in Calcutta, New Orleans, Havana, and other cities situated in southern latitudes, and miasmatic districts. There can, indeed, be but little doubt, all things being equal, that warm climates are most favorable to the ravages of this disease; for although it has sometimes been dreadfully severe, even in the snows of Russia, its severity may be satisfactorily accounted for by the habits of the

people, the number and character of exciting causes, &c.*

2. The next circumstance which may influence the ravages of cholera is, the number of persons exposed to its poison; and this will depend almost entirely on municipal regulations. If the sick, instead of being immediately removed to insulated hospitals, be permitted to remain scattered over the city in their own dwellings, the number exposed will be very great; for the residence of each patient will form a spreading point for the disease; and as those points multiply, the poison will become more and more diffused, till at length there will be scarcely a neighborhood in the city entirely free from its influence. It will not be necessary, at this crisis, to enter into the dwellings of the sick in order to imbibe the poison; for the atmosphere of almost every street and alley will be more or less imbued with it. But it is certain, nevertheless, that the danger will be much greater at the bedsides of the sick than elsewhere, in consequence of the greater concentration of the poison; and it is very obvious, that an unrestricted exposure of this kind must add considerably to the ravages of the disease. In Baltimore, there were thousands who visited

* The following extract from Hordynski's History of the Polish Revolution, sufficiently accounts for the great mortality in the Russian army:

"This terrible disease caused us, on the first few days, the loss of nearly 1000 men; but if it was terrible with us, nothing can express the suffering it produced in the Russian camp, aided by the want of comfort in the arrangements of that camp, and the *acid food upon which the Russian soldiers were habitually fed.*"

the most infected districts, and exposed themselves, *unnecessarily*, in a variety of ways ; and all because they had been told that the disease was not contagious !

3. The prevalence of exciting causes, must also exercise a most important bearing on the ravages of cholera. For, no matter how great may be the general susceptibility, or how extensive the exposure to the poison, still the number of victims will be comparatively small, if there be no causes to assist in developing the disease. We are justified in this assertion by the fact, that in a large majority of those attacked with cholera, its development can be traced to the supervention of an exciting cause ; while they who carefully avoid such causes, almost invariably escape the disease, although exposed to its poison.

It is, indeed, probable that in many instances, where the disease has been traced to an exciting cause, such cause was not at all necessary to its development ; the poison itself being sufficiently powerful for that purpose : and on the other hand, it is not unlikely that many of those cases, which we presume to have resulted from the unassisted operation of the poison, owed their development to some mental or corporeal irregularity, which it was impossible to trace. However this may be, one thing is certain, that the disease is, in a large majority of cases, preceded by some one or other of those circumstances which we recognize as exciting causes.

The exciting causes are very numerous, and may be viewed as general and particular.

The general causes are all those which, under ordi-

nary circumstances, tend to disturb the balance of the system; and thereby subject it to the influence of whatever is injurious. Such, for example, as sudden changes in the condition of the atmosphere, whether thermometrical, hygrometrical, barometrical or electrical; inordinate exercise of the passions; fatigue either of mind or body; loss of sleep; indigestible food, &c.

The particular, or as they might be termed, specific exciting causes are such as, under ordinary circumstances, are found to produce no inconvenience whatever; but when taken into a system impregnated with the poison of cholera, become the most deadly excitors of the disease. Indeed, many of them consist of articles of diet universally admitted to be wholesome and nutritious; and why they, in particular, should exercise so baneful an influence, it is impossible to conceive. The fact, however, is indisputable, that while beef, mutton, and other strong articles of diet, can be eaten with impunity, peaches, apples, melons, and other delicate and delicious fruits* act as the most deadly poisons! I have myself known several instances in which a single mouthful of

* Some persons contend that "ripe fruit, provided it be good and fresh," will not excite the disease. It is evident, however, that they permit themselves to be governed by theory rather than by facts. Nearly one-third of the cases of cholera among the negroes of Baltimore, were traced to the *moderate* use of watermelons alone: and I presume no one will contend that those melons were less ripe, or less fresh, in 1832, when they proved so fatal—than in former years, when they caused no inconvenience. Several arrive at the conclusion, that ripe fruit must be harmless, because they have seen a few persons indulge in its use with impunity. It should be remembered, however, that all persons are not necessarily exposed to the poison, and that among those who really are, there may be *some* in whom even unripe fruit could not excite the disease. It is not by marking the exceptions that we can disprove the rule.

fruit has been immediately followed by an attack of cholera; and the examples are innumerable, in which a moderate quantity of peaches, apples, pears or melons has led to the development of the disease. It would be tedious to enumerate the many particular causes that have been recognized as excitors of cholera; for there is scarcely any crude vegetable, and perhaps no fruit whatever, that does not act with more or less power in this respect. The force of an exciting cause must be greatly modified by the susceptibility of the individual, as well as by the quantity of poison imbibed; and this renders it exceedingly difficult to determine, with accuracy, what causes really are the most powerful. If the susceptibility be great, and the system at the same time highly charged with the poison, the slightest cause may destroy the balance of health: while on the other hand, if the susceptibility be slight, and the quantity of poison small, even the most powerful exciting causes may not be able to develop the disease. It is certain, at all events, that crude vegetables and fruits are among the most powerful of the particular exciting causes; and this, no doubt, is one reason why the disease is so destructive during the warm seasons; for then it is that fruits and vegetables are most abundant.*

The general susceptibility of the inhabitants—the number exposed to the poison—and the prevalence of

* Is it not probable that the great mortality in Paris, Quebec, Montreal, New Orleans, and other cities of *French* habits, was, in a great measure, occasioned by the diet of the inhabitants, which consisted principally of fruits and vegetables?

exciting causes—are three circumstances then, on each one of which the ravages of cholera must greatly depend. If the general susceptibility be slight, the exposure to the poison limited, and the exciting causes few, the power of the pestilence will be almost entirely paralyzed; and it will only appear as a sporadic disease. Should it, under such circumstances, enter a house, even in the centre of a large city, it will be scarcely possible for it to become generally diffused. For if we extend the number of attendants, or persons necessarily exposed even to ten, it is more than probable, should they be but little susceptible, and at the same time careful to avoid all exciting causes, that not one out of the number will suffer from the disease: and even should two-thirds of them manifest the premonitory symptoms, such symptoms may, in four out of five cases, be dissipated by a single prescription. Admitting, however, that one-half the number exposed should, by their own negligence, suffer themselves to become victims to the disease, still it is not necessary that they should also become the means of spreading its poison. Were these five persons, thus attacked, promptly removed to an insulated* hospital, instead of being permitted, as is generally the case, to form spreading points for the disease—the poison would be at once arrested in its diffusion, and owing to its great volatility, would soon become extinct. Such was

* Such a hospital (a single hospital would, under such circumstances, be sufficient for a whole city) might be provided as the proudest citizens would be glad to resort to; and that, too, for less money than was expended in sweeping the *dust* out of the streets—under the impression that the disease was of local origin.

the result in Boston, in Brussels, and in other cities where these precautions were taken; while in New Orleans, Havana, Tampico, and other places in which we may presume the general susceptibility was strong, the exposure great, and the exciting causes prevalent, the ravages of the disease were frightful. Indeed, by considering attentively those three circumstances of susceptibility, exposure,* and exciting causes, we shall be able, in almost every instance, to account satisfactorily, for the extent to which cholera may prevail.

After the disease has reached its acme, it begins to decline, pretty generally in the same ratio in which it had increased, till at length it becomes entirely extinct. This is the case with all contagious diseases:—after the poison of small-pox, measles, or scarlatina has been brought into contact with a majority of the susceptible, it begins generally to subside as its subjects diminish, till at length it expires for want of new victims. The time which a disease will require for its increase or decline, must depend very much on the volatility of its poison. If the poison be but little volatile, it will require a long time to be brought into contact with a majority of the susceptible; and its increase and decline will be proportionally slow. If, indeed, it be of so fixed a nature as to be easily retained in fomites, it will sometimes lurk about, even for years, before it becomes entirely extinct. Of this character is the poison of small-pox.

* It is quite probable that the poison of cholera, like that of small-pox, and other contagious diseases, is favored in its diffusion, by particular conditions of the atmosphere, and this may influence very considerably the degree of exposure.

The poison of cholera, being extremely volatile, runs its course with proportional rapidity. In a city of one hundred thousand inhabitants, it generally requires but five weeks to reach a majority of the susceptible; and five weeks more suffice for its decline. In smaller towns, as might reasonably be expected, its course is still shorter; and in condensed crowds, where the exposure is almost simultaneous, it is frightfully rapid in its career.

PARTICULAR FACTS.

Having now, I trust, satisfactorily shown, on general principles, that the doctrine of contagion is the only one with which the progressive phenomena of cholera can be reconciled, I next proceed to the consideration of such particular facts as will confirm the truth of my proposition. In doing this, it will be unnecessary to cite any of those numerous facts, which the writers of Asia and Europe have recorded, in favor of the contagiousness of cholera; as it would be impossible, in a brief treatise like the present, to notice one out of every hundred which the disease presents, even since its arrival on our own continent. There are, indeed, but few towns or villages, within the whole range which this pestilence has taken, between Quebec and New Orleans, which do not record some unequivocal facts in favor of this doc-

trine ; and if we permitted ourselves to notice such facts as, although somewhat equivocal in their character, afford, nevertheless, strong evidence of contagion, a folio volume would not contain them.

But it is not with foreign, nor equivocal, nor contradictory facts, that I shall, in this place, have any thing to do ; for I am well aware that the chief obstacle to the settlement of this question, may be found in the many collateral and irrelevant discussions to which such facts have given rise. My object is, simply to state a few of those decisive facts which have occurred within our own country, and from which there can be no rational appeal. Facts, than which none *can* be stronger, (short of inoculation,) to prove the contagiousness of any disease.

1st. *Introduction of cholera into Quebec.*—The brig Carricks, James Hudson master, sailed from Dublin some time in April, 1832, with 175 emigrants on board, bound for Quebec. The cholera, which was prevailing in Dublin at the time of her sailing, broke out among her passengers a few days after she left port ; and before the 3d of June, the day on which she arrived in Quebec, forty-two of them (nearly one-fourth of their whole number) had died of the disease ! Notwithstanding this, the remaining passengers, amounting to 133, were permitted to land on Grosse isle, a few miles from Quebec, and no rigid measures were adopted to prevent intercourse between them and the inhabitants of the city. On the 6th, 7th, and 8th of June, several cases of cholera appeared in Quebec, and on the 9th, fifteen cases were officially reported.

This was the commencement of cholera in the Western Hemisphere; and Quebec was the starting point from which it proceeded, step by step, to the innumerable places which it has since visited.

This statement, the authenticity of which may be proved by the reports of the board of health of Quebec, and by the journals of that city, affords conclusive evidence that the cholera was imported by the brig Carricks. The non-contagionists, however, have endeavored to invalidate this fact by urging two objections: one is, that no person had died on board the Carricks, for some weeks before she reached Quebec; the other, that cholera had been prevailing in Quebec, for some weeks before her arrival. The first of these objections, even admitting it to be true, is of but little weight: that forty-two persons died, some time during the passage, is not denied; and if cholera may be conveyed at all in fomites, (and there are numerous facts to show that it may,) the opportunity never was better than in a confined vessel, on board which such dreadful mortality had prevailed.

That the other objection has no foundation in truth, will be made appear by the following extracts of letters from the house of Messrs. H. Gates & Co. of Montreal:

“*Montreal, June 9.*

“ We regret to say that one vessel from Dublin, with a full number of emigrants, has lost forty-two persons during her voyage, by an unknown disease, as is reported: although the remainder of the passengers and crew are said to be now perfectly healthy. The vessel

lies at the quarantine ground below Quebec. An investigation is going on by the physicians to ascertain and report the character of the disease. *Some little alarm was excited, by the supposition that it was the cholera, but the public mind is more at ease within a day or two.*"

"Montreal, June 11.

"We refer to ours of the 9th inst. and regret to say that the unknown disease alluded to, as having swept off forty-two of the emigrant passengers on board the Carricks from Dublin, proves to be the cholera, and the disease is now officially ascertained as existing in Quebec, where fifteen cases were reported on the 9th inst. and several deaths."

If we take any other view than that of contagion, it will be impossible even to imagine why cholera should have visited Quebec first. If it crossed the Atlantic in the atmosphere, it must have passed over Nova Scotia and New Brunswick before it reached Quebec; and yet we find it did not visit the former places till *after* it had ravaged the latter! If it crossed in the atmosphere, it proceeded in a single line, and that line so narrow as to have touched only Quebec; yet we find that after it touched that city, it proceeded in thousands of lines! Unless, then, we admit that the disease was imported in the Carricks, it will be impossible to give a reason for its travelling over the Atlantic in a single line, and over the continent in thousands of lines. Besides, if it crossed in the atmosphere, there were many hundred chances

for its arriving either before or after the brig Carricks; yet we find that they both arrived at the same time!

If the cholera did not cross in the brig Carricks, nor in the atmosphere, it must have originated in Quebec; and if it did originate in Quebec, it must have preferred that city to any other in the western world, without our being able to assign the slightest cause for such preference! Besides this, it is a strange coincidence, that cholera should have chanced to originate in a city, to which emigration was greater than to any other—and that, too, at the critical moment when an infected vessel arrived there!

It is also to be observed, that if cholera originated in Quebec, there was no reason why it should next have originated in Montreal, any more than in New Orleans; or in Albany, any more than in Tampico; yet it originated in an unbroken chain, of which Quebec formed the first link!

No vessel, with cholera on board, had ever arrived in Quebec till the 3d of June, 1832; and no case of cholera had ever appeared there till the 6th of the same month; what, then, could be more astonishing than that two events, neither of which had happened throughout all ages before, should *both* have chanced to occur at the same time, and yet have had no necessary dependence on each other!

The contagionist removes every difficulty, by stating as follows: the brig Carricks, crowded with emigrants, on leaving the infected port of Dublin, carried with her the seeds of cholera; these seeds in due time developed

the disease, and this disease, owing to the concentration of its poison, swept off the frightful proportion of one-fourth of the number exposed. The surviving passengers of this vessel, many of them perhaps laboring under the milder forms of cholera, were permitted, on arriving at Quebec, to have intercourse with the inhabitants; and the disease was in this manner communicated, first to that city, then to Montreal, and so on to every place where such intercourse extended. Such is a rational explanation of the facts on this subject; and by it we are enabled clearly to understand why the first appearance of cholera on the western continent, coincided so exactly with the first arrival of an infected vessel.

2d. *Introduction of cholera into Folly Island.*—Some time in October, 1832, the brig *Amelia*, with one hundred and eight persons on board, sailed from New York, where cholera was still prevailing, for New Orleans. On the sixth day out, sickness commenced on board, some dying in a few hours, and others lingering for several days. The physicians on board pronounced the disease to be cholera, and twenty deaths occurred at sea. On the 30th of the same month, the brig was stranded on Folly Island, which is situated about ten miles from Charleston; and in a day or two afterwards, the disease began to spread among the inhabitants of that island. The persons employed about the wreck were the first attacked, and the most severely afflicted; and it will be seen by the following extract, taken from the official report of the intendant of Charleston, dated the 7th of

November, that the authorities were so firmly convinced that the brig was the source of the disease, that they ordered both her and her cargo to be completely consumed.

"The wreckers employed about the vessel and cargo of the Amelia have suffered much: six out of seven deaths which occurred on the 6th inst. being of their number. The intendant, board of health, and the attending physician on the island, came to the conclusion that the wreck, containing a large quantity of infectious matter, has essentially contributed to the propagation of the malady; if, in fact, almost every case that has occurred be not distinctly owing to that cause. Accordingly, orders were given by the public authorities to have the vessel and cargo burned as completely and effectually as possible, which was accordingly done."

In addition, it may be proper to state, that before the arrival of the brig Amelia, no case of cholera had ever occurred within two hundred miles of Folly Island.

3d. *Introduction of cholera into Detroit.*—The cholera was introduced into Detroit by the United States troops, on board the steam-boat Henry Clay, as will appear from the following extract, taken from the Detroit Journal of the 11th of July, 1832:

"We are obliged to announce to our readers that the spasmodic cholera has made its appearance in this city. As might be expected, the prevalence of such a malignant disease among us has produced very general alarm among our citizens. The first case occurred on the 5th inst. among the troops on board the Henry Clay. The

subject, who was a soldier of intemperate habits, expired after an illness of seven hours. Others were soon after taken ill, and all of them exhibited the usual symptoms which are said to attend the disease. The vessel was ordered to leave the port, and she proceeded to Hog Island, where she was furnished with supplies from this city for her voyage to Chicago. On Friday the 6th, two cases occurred in town. *The individuals had been employed the day previous to communicate with the boat.* One of them recovered, the other died the next day. On Saturday and Sunday other cases occurred."

The Henry Clay had touched at several places where cholera was prevailing, before she reached Detroit; and that town, up to the time of her arrival, had enjoyed its usual health.

4th. *Introduction of cholera into St. Michaels.*—Some time in August, 1832, Captain Dodson returned from Baltimore, where the cholera was then raging, to St. Michaels, a small town on the Eastern Shore of Maryland. While on his passage, he was attacked with this disease, and on the morning of his arrival at St. Michaels, he died. In a day or two after his death, other cases of cholera occurred there; and it will be seen by the following extract from the Easton Whig, of September 4th, that the disease became general among the inhabitants of that village :

" St. Michaels continues to be sorely afflicted with this dreadful disease. Since the death of Captain Dodson, from the best information we have been able to procure, there have been eighteen or twenty cases of un-

doubted cholera, about one half of which have terminated fatally."

The situation of St. Michaels is known to be in one of the most healthy sections of the Eastern Shore; and its inhabitants had never enjoyed better health than immediately before the arrival of Captain Dodson. The whole circumjacent country has remained, to this day, untouched by cholera.

5th. *Introduction of cholera into Charles county.*—As this fact is faithfully and circumstantially related by William L. Brent, Esq., in a letter to the editors of the National Intelligencer, it will only be necessary to make an extract from that gentleman's communication; and this I shall give without comment:

"In your National Intelligencer of the 18th inst. you state that in a square east of Mr. Packard's milk establishment, there have been eleven deaths out of a population of sixty. This mortality is nothing to that which has taken place on the plantation adjoining mine, belonging to the widow of the late Dr. Brent, and tenanted by Mr. Philip Steuart, the son of our old friend, General Steuart. I am told that the number of persons on the plantation did not exceed eleven, out of which eight have died, including Captain Gibson and Mr. Washington, with the cholera; and I am informed by one of my servants this morning, that another is at the point of death. I cannot relate facts as of my own observation, as I assure you so violent is the disease, and so fatal in its attacks, that I have not only been afraid to visit that plantation, but have forbidden all communication to or

from it.* The facts as stated to me, (and Dr. Pattison and others may reason as they please,) prove the disease to have been contagious in this case. A captain of a vessel from Georgetown, whose name was Gibson, landed at the plantation, *to that moment perfectly healthy*, and died with the cholera, and was buried there. A day or two after, a negro man was attacked in the same way, and died, and since then four more negroes have died in the same way, and with the same disease. The overseer (Mr. Martin) rode up to a friend's house in the country, a day or two ago, was taken on the road, and died in a few hours after he reached his friend's house : and a Mr. Washington, formerly of your city, or Georgetown, who went to the plantation, was taken, and died in a few hours. The plantation is thirteen miles from Alexandria, upon the Potomac, and is considered as healthy as any in the neighborhood."

6th. *Introduction of cholera into a farm-house.*—This fact is taken from the Delaware Watchman, of August 24th, 1832.

"A few days since, a young lady from Philadelphia, which place she left on account of the prevailing epidemic, arrived at the house of her father-in-law, who resides in the western part of this county, where she contemplated staying until the disease should so far abate as to warrant the safety of her return. She was much rejoiced that she had been so fortunate as to make her escape ; but, alas ! her joy was of short duration.

* I am authentically informed that the disease did not spread beyond this plantation.

In the evening of the day on which she arrived, she partook of a small quantity of fruit before retiring to bed, which caused almost an immediate attack of the disease; and notwithstanding every exertion was made by her friends to relieve her of the excruciating pain under which she was suffering, next day she was a corpse. Two others of the family were shortly after attacked, both of which cases proved fatal."

"The alarm which had now been created in the family was so great, that it became necessary to call on the neighbors for assistance, but owing to the excitement which the melancholy intelligence occasioned, none could be induced to render the assistance required. At length, a lady in the neighborhood, after having been assured by the physicians in attendance, that there was nothing to fear, was prevailed on to aid them in the deplorable situation under which they were placed. But having suffered her feelings to become so much excited, she was compelled to return home, when, sad to relate, she too was attacked, and soon after died. A black woman in the family in which the first cases occurred, has since died with the same disease, and at this time, we regret to learn there are six more confined to their beds, among which number is the head. This is another evidence of the hopelessness of an attempt to flee from the monster which is visiting cities, town and hamlets, leaving desolation and death in its train."*

* Strange as it may appear, this is the manner in which almost every editor in the United States (under the delusion of non-contagion) dissuaded persons from leaving the infected towns! If, out of five hundred refugees, two or

7th. *Introduction of cholera on the New Jersey Canal.*—A New York paper of the 7th of August, 1832, gives the following account of the introduction of cholera among the laborers on the fortieth section of the New Jersey canal :

“Princeton, (N. J.) August 4.

“ We have learned with regret that the cholera has been making great ravages on one section of the canal—No. 40, about seven miles from this place, in the valley of the Mill Stone. The adjoining sections of the canal are perfectly free from the pestilence, and indeed on the whole line from Lambertville to Trenton, and from Bordentown to New Brunswick, with this exception, the laborers enjoy good health. On Thursday the 26th ult. a pedler from New York arrived on this section at night, was seized at five o'clock on Friday morning, and died the same afternoon. During this day three, engaged on the work, were taken and died on Friday night; on Saturday, Sunday and Monday, seven more were seized, and six died; on Tuesday, two more were attacked and died on the work; and Mr. Elmendorff, a highly respectable and worthy man, whose house is within the district, also died—thus making, on this one section, fourteen cases and thirteen deaths. On Tuesday the hands were all discharged and left the work.”

8th *Introduction of cholera among the Indians.*—The Utica Sentinel of the 7th July, 1832, after stating that

three chanced, by fleeing *too late*, and by thus carrying with them the seeds of the disease, to die, after they had reached the country, their deaths were almost invariably cited as instances of the folly of trying to escape !

the city had continued perfectly healthy up to that time, subjoins the following article :

“ *Cholera among the Indians.*—A few days since an Indian, belonging to Oneida Castle, twenty-three miles west of this city, was hired by the captain of a passing boat, to bury a man who had died of cholera on board. He procured some other Indians to assist him. He was immediately seized with the cholera and died—five other Indians were taken, all of whom died. No other cases have occurred.

9th. *Introduction of cholera into Staten Island.*—This fact is taken from the New York Evening Post.

“ We regret to learn that cholera has appeared at the Seamen’s Retreat, on Staten Island, about one mile below the quarantine ground. Nearly one hundred invalids have been inmates of the establishment for the first year; and being nearly all more or less subjects for the disease, the greatest precautions have been taken by Dr. Townsend and the trustees, to prevent its appearance at that place; being obliged, however, to receive seamen from the city, as well as from vessels, one or two persons have recently been taken in from the city, who soon were taken, and died by cholera. Ten other cases have appeared, within two days, all of which are convalescent.”

10th. *Introduction of cholera into the Marine Settlement, Illinois.*—It is stated by a St. Louis paper of the 24th of May, 1833, that the cholera had made its appearance at the Marine Settlement in Illinois, about twenty-four miles east of that place. The first case occurred in a

laborer in the employ of Captain Blakeman. This man had been on a visit to St. Louis, where cholera was then prevailing, and immediately after his return, sickened and died of the disease. Shortly after, Captain Curtis Blakeman, and his daughter, a young lady about fifteen years of age, were attacked and died, and Mrs. Blakeman survived them but a few hours.

11th. *Introduction of cholera into Key West.*—On or about the 26th of April, in the present year, the brig Ajax sailed from New Orleans, bound to Liberia with nearly 150 emigrants on board, and was compelled after she had been fifteen days at sea, to put into Key West in distress. She lost her mate and two blacks, when she had been but two days out, and the ship carpenter aboard reported that thirty or forty of the emigrants died of cholera, whilst the brig was anchored off the town.

Having remained at Key West for about five days, the Ajax left there on the 16th of May for the place of her destination. Immediately after her departure, the disease broke out in the town—and between the 16th and 27th, fifteen cases and nine deaths occurred, out of a population of two hundred.

When the Ajax left New Orleans, the cholera was prevailing there, and before her arrival at Key West, a case of the disease had never appeared within three hundred miles of that island.

12th. *Introduction of cholera at Plymouth Locks.*—In the early part of August, 1832, when the cholera was raging at Philadelphia, a laborer, who had been dis-

charged from Arch street prison, during the dreadful mortality that prevailed there, made his appearance at Plymouth Locks, in quest of work. Shortly after his arrival he was seized with cholera, and in a few hours died. Scarcely had he been interred, before others were seized—and in a few days, fifteen cases and nine deaths had taken place out of about twenty individuals! The neighborhood about the locks had continued as healthy as usual till the arrival of this laborer.

13th. *Introduction of cholera into New Haven.*—About the 8th of July, 1832, when the cholera was prevailing in New York, a Mrs. Northorp and her son fled from that city to take refuge in New Haven, the residence of her parents; and immediately after their arrival, both sickened and died of cholera. Two days after their deaths, Mr. and Mrs. Jones, the parents of Mrs. Northorp, who had nursed her during her sickness, were also seized with the disease, and died on the morning of the 4th of July. These were the first cases of cholera which occurred in New Haven—and neither Mr. nor Mrs. Jones had visited any place where the disease was prevailing.

14th. *Introduction of cholera into the Alms-house near Flatbush.*—The Long Island Star relates the following fact:

“ There have been several cases of cholera, and some deaths at the new alms-house of King’s county, situated in an isolated spot, a short distance from Flatbush. There are now no more remaining. The first occurred on the 17th of July, in a man who had been more or

less intoxicated for six weeks at Williamsburgh, and was brought to the alms-house with symptoms of spasmodic cholera. He died on the 21st. Since this case, there have been six cases of malignant spasmodic cholera, and three deaths; four cases of mild spasmodic cholera, and eight cases of common cholera morbus, none of which were fatal. There have been no more new cases since the 26th of July."

15th. *Introduction of cholera into Nyack.*—The town of Nyack, situated in the state of New York, had remained perfectly healthy till towards the last of July, 1832, when a Mrs. Leydecher arrived there from New York, and died of cholera on the same night of her arrival. Immediately after her death, Mr. Leydecher, her father-in-law, took the disease and died. Mr., Mrs. and Miss Graham next fell victims in quick succession, and the disease after that began to spread generally among the inhabitants.

16th. *Introduction of cholera into Fort Armstrong.*—The following is from the Washington Globe:

" We regret to learn that the cholera has appeared among the troops at Fort Armstrong. The most judicious measures seem to have been adopted by General Scott, and maintained with the greatest vigilance and constancy, to prevent the spread of infection. The force under his immediate command appears to have been preserved free from it until the 25th ult. On the evening of that day, one of the mounted rangers of Captain Ford's command, who was for a short time in Fort Dearborn (Chicago) on the 10th, was received into Fort

Armstrong, sick, as afterwards appeared, with the cholera. Between the 26th ult. and the 1st inst., there were one hundred and forty-five cases; twenty-six died, twenty-two were recovering, and six were perfectly cured."

17th. *Communication from Dr. H. G. Doyle, of Washington, Mississippi. (From Hagerstown, Maryland.)*

"On Sunday, the 4th of August, 1833, a woman from the line of the canal was taken to the hospital of this town, and died of cholera. On Monday morning the 5th, an aged colored woman was found dead in her house in the immediate neighborhood of the hospital, having died, from the account of her husband, in about two hours after her attack, of cholera. On Monday afternoon, same day, another old colored woman residing in the same house, died in a few hours after her attack. On Tuesday morning the 6th, two old black men, Nace and Stephen, were attacked; Nace died on Wednesday, and Stephen on Thursday. Nace made his home in the house in which the two old women had died, but was absent from Sunday night until Tuesday morning. Stephen lived in the house next to that which had been occupied by the old women. In addition to these cases, a small girl, on the same lot, was violently attacked with spasms on Tuesday morning the 6th, but recovered. A few days subsequently, two other deaths occurred in the neighborhood of the hospital; and one in a tavern (at which old Nace had stopped on Tuesday morning) several hundred yards from the hospital. Thus far the origin of every case may be traced to the hospital.

"About the time of the occurrence of the last mentioned cases, a death took place at a tavern on the southern border of the town, more than half a mile from the hospital, a laborer from the canal. Since then three deaths have occurred in the same and adjoining house.

"The disease, with the exception of the case at the first named tavern, has been exclusively confined to the neighborhood of the two points; the hospital and the tavern on the southern border of the town—the balance of the town remaining perfectly exempt from it.

"Hagerstown, Sept. 2d, 1833.

"DEAR SIR:—The preceding history of the late visitation of cholera asphyxia at this place, was furnished me by William D. Bell, Esq., Moderator of the Board of Commissioners of Hagerstown. It goes far to establish the fact that at least the disease did not put on the livery of an epidemic; and further, that it was communicated from one person to another in the same family.

"The case of Mr. Herman's man, of which I spoke when I saw you, was substantially this—Mr. H. purchased a negro at the city of Natchez, from a trader who had just descended the river in a cholera boat; the day after he arrived at his plantation he was taken with cramps, accompanied by the peculiar discharges attendant on cholera patients. I attended the case. Mr. H., fearful of the disease spreading amongst his negroes, administered to him himself, and permitted none other to visit him. Before the negro had entirely recovered, Mr. H. himself was taken, and had a very severe attack of

cholera. He had not been in a cholera atmosphere, nor seen any other person laboring under the disease, save his own negro.

"Mrs. H. died at Maysville, about the time of the cholera's first appearance at that place. She was taken to Flemingsburg for interment, but remained unburied until the next day; and on the same day nine deaths occurred amongst those who attended the wake. Flemingsburg up to that time had been perfectly healthy; from this germ the disease spread and committed the most horrible ravages. My memory does not serve me sufficiently to give you an exact detail of the different cases, nor can I speak of the Flemingsburg cases from personal observation; but the information was derived from a source in which I have the most implicit reliance.

"Should this brief sketch be of any service to you in furtherance of your laudable design, I shall feel much gratified, as I believe the establishment of the fact that cholera is a contagious disease, will contribute much to the preservation of human life, and the prevention of human suffering. In great haste,

Your obedient servant,

H. GEO. DOYLE.

Dr. B. M. BYRNE."

18th. *Extract from the Hagerstown Torch Light of the 12th of September, 1833, accompanied with a letter from William D. Bell, Esq., editor of that journal.*

"Hagerstown, Sept. 12, 1833.

"On Thursday night last, a person who had been

committed from the neighborhood of Sharpsburg the day preceding was attacked with cholera, in the jail of this county. He was removed to the hospital without delay, and died on Tuesday ; his name was Henry Romley. No other case occurred until Saturday last, when two more persons were attacked, and removed to the hospital—one an old man, name not known, the other named William Brewer. Brewer died on Saturday night and the old man on Sunday morning. John Rogers was attacked in prison, on Sunday morning, and died on the same day. And a runaway negro, named George Pendleton, was attacked on Sunday, and died on Monday, in the hospital. Joseph Philips, and an old man named Moyers, were liberated on Saturday ; Moyers died in Funkstown on Sunday, and Philips died in the hospital on Wednesday morning. We have not heard of any other deaths among those who were in the jail when the disease broke out, all of whom, to the number of about twenty, have been bailed and liberated. With the exception of the cases already noticed, and all traceable to the jail, there has been but one other death—that of Celia Cook, a colored woman, who resided close to the jail. There is, we believe, at present not a single case in the town or neighborhood, both of which continue unusually healthy for the season. Whole number of deaths from Saturday to Wednesday, 8.

“ Hagerstown, Sept. 21, 1833.

“ DEAR SIR :—Your favor of the 19th inst. has been duly received. In reply to your inquiries respecting the

correctness of the statement (as published in my paper of the 12th instant) of the cases of cholera which recently occurred in the jail, hospital and neighborhood, I have to say that it is strictly accurate. The cases in the hospital came under my immediate and personal observation; the other cases were reported to me by the attending physicians.

" You are at liberty to use my name as authority for this statement if you think proper.

" I believe that no case has occurred in Funkstown, since the death of Moyers, and but one in Hagerstown, since that of Celia Cooper. This was a colored man, named George Coney, next door neighbor of Celia, who had helped to place her in the coffin.

" No case has occurred since the disease broke out in the jail, that is not traceable to it.

" There is one fact which is worthy of remark, perhaps, in connection with this subject, that is, that during the prevalence of cholera at the hospital, and jail and neighborhood, during this entire season, our citizens in other parts of the town and neighborhood, were almost entirely exempt from diarrhoea and every thing like premonitories—a fact that goes to show that our atmosphere could not have been generally affected.

Yours, very respectfully,

WILLIAM D. BELL.

Dr. B. M. BYRNE."

19th. *Extract of a letter from John Dulin, Esq., Fairfax county, Virginia, dated September 15th, 1833.*

"I saw Mrs. Draper yesterday. She says the man whom the doctor attended was named Clark, he resided in Colchester,* and traded up the river in a vessel: he had just returned from Georgetown in the District of Columbia, where he had delivered a cargo of wood, at which place the cholera then raged. He was accompanied by two colored men, one of whom also died about the same time. The doctor first saw Clark about 10 o'clock on Sunday, and continued with him until night, he then left him not quite dead; two men waited on him during his sickness, and laid him out after death.

"The doctor complained somewhat on Monday night; all day Tuesday, he said he certainly had the premonitory symptoms of cholera, but as it was a busy day with him, he must put off taking medicine until Wednesday morning. He had been out through the day, but returned home between ten and eleven o'clock. His wife asked him to take supper; he refused: and replied, 'if you knew how badly I feel, you would not ask me—I am now prepared to take medicine, which I will do in the morning.' She was aroused about two o'clock by his puking. She asked what was the matter. He said, 'I have the cholera,' and directed something to allay the vomiting. A physician was sent for, and his nephew, who was with him, desired to bleed him; he objected,

* Colchester is eighteen miles distant from the part of the country where Doctor Draper lived; and it is ascertained that the cases of cholera here mentioned, were the only ones that occurred in either neighborhood.

and said it was too late, and died about 10. None of his attendants took the disease. A young gentleman in the same house with Doctor Draper took the disease five days after; however he did not go into the chamber of the doctor. Two servants who waited on him were taken some time after him, and died. I think the day on which the doctor died, a messenger came for him to visit one of the men who was with Clark; before he got back the man was dead, and within a day or two the other died. This report of facts is confirmed by several others."

20th. *Extract of a letter from a gentleman in Port Tobacco, Charles county, Maryland.*

"DEAR SIR:—Your letter soliciting information in relation to the introduction of cholera into Port Tobacco, has been received, and I most cheerfully comply with your request as far as my knowledge extends.

"The first case of cholera which occurred in Port Tobacco was that of a man by the name of Beall, a resident of the county, but not of the town. This man, as I have been informed and believe, a few days before he was attacked, had been to the Occoquan mills in Virginia, in company with his brother, where they went on board of a *long boat*, from the District of Columbia, in which a man was ill at the time and died of cholera. Beall was taken at night with this disease, at a tavern, and died next day. The next case was that of the bar-keeper at the tavern where Beall died, and other cases followed in quick succession. Beall's brother, who accompanied him to Occoquan, was attacked at home in

the county, and died the same day or the day after his brother died in Port Tobacco ; and a third brother, who attended the one in the county, died of the same disease a few days afterwards.

“ The only family in the neighborhood which was visited with this disease, was that of General Matthews ; and the first case that occurred was a negro man who resided in Port Tobacco, and had a wife and family at the general’s. This man left Port Tobacco on the evening of the third or fourth day after the first case occurred in town, was taken that night, and died next day ; and four other cases succeeded within a few days thereafter. The disease was confined entirely to those who assisted in nursing, and were in contact with the sick ; and what is remarkable, three colored persons who resided in Port Tobacco, and died of the disease, visited one of those who died at General Matthews’ during her illness—she being an aged female to whom they were much attached. This I have heard from good authority, and believe it to be true.

“ At the poor-house near Port Tobacco, not a case of cholera occurred, until two children were carried there with the disease upon them, both of whom died. These were the children of a sister of the Bealls before spoken of, who, being left friendless, were from necessity taken to the poor-house. Whether or not they resided in the family with their uncle, who died as above mentioned, and thereby may have been supposed thus to have contracted the disease, I am not prepared to say ; but immediately after their introduction into the poor-house,

several other cases followed; and I believe about one-sixth or seventh of the inmates died. I do not now recollect the precise number of deaths, nor is it material for your purpose: many, no doubt, were saved by leaving the town upon the first appearance of the disease; and there was not a single case of cholera with those who took this precaution. The town was literally deserted for some weeks, and almost perfect non-intercourse established between the town and country. I believe there were a few cases in town which could not be traced to any immediate contact with a diseased person; but the number was very few, and although they may not have come into actual contact, they were almost contiguous in locality of residence.

"I have thus, sir, hastily sketched off the information required by you, and before doing so, I assisted my own recollection of facts by conferring with others. In some instances, I found that I had heretofore labored under a misconception as to some matters, and probably in what I may have stated above, there may be a diversity of opinion or of recollections. I have aimed, however, at truth, and give you the facts as I understand them.

"In giving publicity to these facts, I do not wish, however, that my name should be introduced, nor do I conceive it to be at all necessary. In this place it will be known from whom the information is derived, as I have spoken of your letter, and of my object in getting correct information in relation to the matter in question. There are some here entirely opposed to the doctrine of contagion; more especially the physicians. Others,

however, and especially General Matthews, who was an eye-witness of the cases in his own family, are decidedly of opinion that the disease is contagious. To use a more vulgar word, that it is "*catching*" I have no doubt:—whether by actual contact, or by the noxious air arising from the diseased person, and thus imparted to those who are exposed to its influence, or how it is communicated, I am not scientific enough to express an opinion.

I am, sir, respectfully,

Your obedient servant,

—
Dr. B. M. BYRNE."

21st. *Introduction of cholera at Govanstown.*—The last fact which I shall mention, is one that occurred in the vicinity of Govanstown, about four miles from Baltimore:

About a quarter of a mile from Govanstown, lived Nicholas Gill and Mrs. Dewees, in two adjoining frame houses; and distant from those houses about 100 yards, stands a stone house, which was inhabited by Mrs. Gill, and her son-in-law, Mr. Cadwallader, together with three children. In September, 1832, when the cholera was raging in Baltimore, and when Govanstown with its neighborhood, for miles around, was perfectly healthy, the disease was introduced into two of those houses in the following manner:

Mr. Joshua Gill, a brother of Mr. Nicholas Gill, after having spent some three or four days in the city, was on his way back to his residence, further up in the country;

when he was taken suddenly ill on the road, and being near the house of Mr. N. Gill, was induced, by the severity of his symptoms, to enter and remain. This was on Tuesday evening, and on Friday he died of cholera.

Mrs. Gill, of the stone house, waited on Joshua during his illness; and not having any person to take charge of the children during her absence from home, she brought them into the room where she was nursing.—On the ensuing Sunday, herself and the three children were seized with cholera, and before midnight they were, all four, numbered with the dead. A black woman, an inmate of the family, who nursed the sick, was likewise attacked on Sunday, and died the next day. Finally, the death of Mr. N. Gill, on Tuesday, after one day's illness, completed the tragedy.

Of all those who died, not one, except Mr. Joshua Gill, had visited any place where cholera was prevailing.

Mr. Dewees and Mr. Dobbin had assisted in laying out the dead, and were both taken with the premonitory symptoms, but recovered.

Mrs. Dewees, living next door, prevented her children, five in number, from having any intercourse with the sick; and she herself visited the infected dwelling but once; neither she nor any of her children was attacked.

The houses in which those persons died were surpassed by none in the vicinity in cleanliness;—and the habits of the inmates, as far as could be ascertained, differed in nothing material from those of their neighbors.

But one other case of cholera occurred, either in

Govanstown or its neighborhood, during the whole season; and that was in the person of a black man, who had frequently visited the city during the prevalence of the disease.

The facts here stated may be relied on for their accuracy: they were recorded in the neighborhood where they occurred, in my own presence, by a medical gentleman who is a non-contagionist;—and they are given on the concurrent testimony of Mr. and Mrs. Dewees, and Mr. Cadwallader, who were themselves witnesses of this tragic scene.

I might cite numerous other facts of this description, but I consider it unnecessary: the mind that cannot be convinced by so many unequivocal proofs of contagion as are here presented, will not be convinced by any amount of similar evidence.

If such facts as these do not prove that cholera is contagious, it is impossible to prove the contagiousness of any disease, except by inoculation.—It would be no easy task to adduce such conclusive facts to prove the contagiousness either of measles, hooping-cough, or mumps; yet few will deny that any one of these diseases is contagious. In truth, there is no disease, not imparted by inoculation, which presents so many facts, both general and particular, in favor of its contagiousness, as cholera;—and the wonder is, that men who deny the contagiousness of this disease, should be so inconsistent as to admit that of measles, hooping-cough, scarlatina or mumps.

I again assert, that no facts can be stronger to prove

the contagiousness of a disease, than such as are here stated. If we take, for example, the case of Folly Island, it is impossible to conceive how any rational mind will resist the conclusion that cholera was introduced there by contagion. Folly Island forms but a mere speck on the map of the Southern states; and the chances against the cholera appearing there first, must, on any other principle than contagion, have been at least ten thousand to one;—and yet that speck was the first, and the only place, for hundreds of miles round, where cholera appeared!

Folly Island, too, was the only part of the southern states at which a vessel with cholera on board had ever arrived; and the day after her arrival was the critical juncture at which the disease broke out there: if, then, we could for a moment suppose, that the appearance of cholera at that island had no necessary connection with the arrival of that infected vessel, the coincidence would be one of the most wonderful that ever occurred. Against the occurrence of *one* such coincidence, the chances would be at least one hundred thousand:—what then must we think when we find another such coincidence at Key West, another at Detroit, another at New Haven, one still more wonderful at Quebec, and twelve others (thousands might be cited) at different places! Is it rational that we should *still* call them “coincidences?” and if so, why not call it a coincidence when inoculation produces small-pox?

OBJECTIONS OF THE NON-CONTAGIONISTS.

ALL the objections urged against the contagiousness of cholera, which are in the least degree worthy of refutation, may be embraced under the six following:

1. *That this disease appears in places where it is impossible to trace it to its introduction.*
2. *That the strictest quarantine regulations have often-times proved ineffectual in excluding it.*
3. *That many persons may be exposed to its poison without contracting the disease.*
4. *That its sudden increase and decline are incompatible with the laws of contagion.*
5. *That it may be contracted more than once by the same individual.*
6. *That there are no pustules, nor any other ostensible source from which the poison may be supposed to emanate.*

There is no particular fact, against the contagiousness of cholera, which may not be distinctly referred to one or other of these six general objections; and, this being the case, it is only necessary to refute those objections in order to invalidate *all* the facts of the non-contagionists. I shall now endeavor to accomplish this object:

First. It will not be denied that cholera sometimes appears in places where it is impossible to trace it to its introduction; but then the same is true of every other contagious disease: small-pox frequently appears, especially in inland towns, without the possibility of its being traced; and it is but seldom that measles, hooping-cough, scarlatina or mumps, can be traced to the cause of their introduction. It would be wonderful, indeed, if in tracing these invisible poisons, we were able, in every instance, to mark their footsteps: for it is easy to conceive, that did they even consist of visible substances, we should oftentimes lose sight of them in the many secret paths by which they travel. Many, if not all of them, are capable, to a greater or less extent, of being conveyed in fomites;* some may be communicated, like small-pox, by the convalescent, or persons laboring under such mild forms of the disease as will not prevent them from travelling; while others, again, may possibly be imparted by means of which we are at present entirely ignorant.† In addition to all this, it not unfrequently happens that municipal authorities feel it a duty to conceal the first manifestations of those diseases, and thereby increase still further the difficulty of tracing their introduction.

* Fomites mean substances, of any kind, in which the poison of contagious diseases may be retained. There are many facts to prove that the poison of cholera may, under certain circumstances, be conveyed in fomites. Its great volatility, however, causes it soon to escape; and this makes it difficult to convey it to any great distance in this manner.

† It is by no means improbable that persons of strong constitution, who have been exposed to cholera poison, may, without having had the disease themselves, be able, by elimination, to communicate it to others.

Of all contagious diseases, there is, perhaps, not one whose introduction is so frequently traced as that of cholera; and this seems to depend on the great volatility of its poison, which renders it difficult to convey it in clothes, or other fomites by which it may be secretly introduced. The introduction of this disease is most easily traced when it makes transmarine visits: in those instances, it invariably appears first in a seaport, and is always coincident with the arrival of an infected ship. It did not visit the Mauritius, until the frigate Topaze arrived there with a sickly crew; it did not visit England, until a vessel arrived at Sunderland on board of which some persons had died of the disease; it did not show itself in North America, until a vessel arrived at Quebec on board which there had been many deaths; it did not visit Folly Island, until the brig Amelia, with several patients on board, was wrecked there; it did not visit Portugal, until a vessel arrived at Oporto on board of which several British officers had died. But we are told that, in some of these instances, the disease had appeared several days before the arrival of the ships; and in others, that the persons first attacked, were persons who had had no intercourse with the sick: such assertions as these, however, will be duly estimated by every one who considers the number of miraculous coincidences which they involve.

Cholera, in common with all other contagious diseases, is much more difficult to trace into large cities (unless when it crosses the sea) than into small towns and villages. The reasons are obvious: besides the efforts

made by boards of health to conceal or distort* facts, the great number of persons who may daily arrive from infected places, and have unrestricted intercourse with the citizens, must, in many instances, defeat the most vigilant scrutiny.

In small towns and villages, and more especially in country houses, the difficulties are much diminished. In these, every person who may have been exposed to the poison is known—and the only obstacle that presents itself is the introduction by fomites. This mode of introduction but seldom occurs in cholera, and the consequence is, that we are able, in almost every instance, to trace the disease whenever it visits these smaller places.

It is unnecessary to pursue this objection further, as

* The following notice from the Board of Health of Baltimore will serve, as a specimen of the manner in which such facts have been distorted :

"N. B.—An editorial paragraph having appeared in a morning paper, stating that three cases of cholera were reported to the Board of Health, as having occurred in Ruxton lane. It (therefore) becomes necessary to state in anticipation of the weekly report, that the cases alluded to are known to the Board of Health; and in their opinion, *there is nothing to alarm the citizens*. The first one was discovered on Saturday morning, having been intoxicated, and exposed to the night air two nights before; he was immediately removed to the hospital, and is now in a very fair way of recovery. The second was an old man of eighty-four years of age, who had been ill with the premonitory symptoms for some days, he was taken ill at 6 P. M., and his situation was unknown until the next morning, during which time he had no attendant whatever, he consequently died the next day.

The third and last case, was that of a woman who was taken ill some time during Saturday night, and expired on Sunday night, (in about sixteen hours.) In this case, however, upon a post mortem examination, it was ascertained that she had received a blow, or kick upon her left side, which might have produced death, had there been no other cause. All three of these cases were colored persons of the most intemperate habits. By order,

DAVID HARRIS, *Secretary.*"

it must appear evident, that if cholera is to be considered non-contagious because we are unable, in some instances, to trace it to its introduction, the contagiousness of small-pox, of measles, of hooping-cough, and other diseases must *a fortiori* be denied.*

2. It is extremely unreasonable to urge against the contagiousness of cholera, the fact that *cordons sanitaires*, and other quarantine restrictions, have sometimes failed to exclude it; since the same is no less true of every contagious disease. There is no contagious disease which does not frequently elude the most rigid quarantine. Small-pox, whose contagiousness no one will deny, is excluded with greater difficulty than any other disease: notwithstanding the small number of persons who are susceptible of it, it can seldom be shut out, even from foreign ports; and is perhaps never restricted, except by vaccination, after it has once entered a country. Indeed, before the discovery of vaccination, there was no possibility of resisting its invasions, whether made by land or sea. The great difficulty of excluding small-pox, very probably depends on the facility with which it may be conveyed in fomites. Cholera is very different in this respect; it is seldom conveyed in fomites, and

* We are oftentimes tauntingly asked, even by physicians, if we can tell how cholera was introduced into some places, and why it was not introduced into other places; as though we should be able in *every* instance to account for its invisible movements! What if *we* should ask how small-pox was introduced into Baltimore, into Charles county, and into several other places where it has appeared of late; and why it was not introduced into Frederiektown, Hagerstown, and several other places where it has not appeared; would they who disbelieve in the contagiousness of cholera be able to give us an explicit answer to those questions?

perhaps never to any great distance. The consequence is, that it is more frequently controlled by quarantine restrictions, than any other disease with which we are acquainted. It is true the *cordons sanitaires* of Prussia, although conducted with the utmost rigor, proved ineffectual in excluding it: but in this instance, as well as in many others, we are by no means certain that *all* intercourse with the infected was cut off; especially when we consider the very extensive frontier which it was necessary to guard; and that during a time of war. It will hardly be contended that if small-pox, instead of cholera, had been prevailing as an epidemic on the frontiers of Prussia, that those cordons would have been successful in excluding it: and I am therefore at a loss to conceive why the non-contagionists should insist so much on a fact which is perfectly reconcilable with the laws of a disease which they themselves acknowledge to be contagious.

The instances in which cholera has been shut out by quarantine restrictions are very numerous; and might have been much more so, had the disease been universally regarded as contagious. The kingdoms of Spain, Naples and Portugal* afford triumphant evidences of the

* Portugal successfully resisted the incursion of cholera till a few months ago, when, as will appear by the following extract taken from a New York journal, the disease was introduced into Lisbon, by some troops destined for Don Miguel's army.

"The cholera was carried into Lisbon by the troops sent out for Don Miguel's army; several staff officers of which died on the passage. The disease first made its appearance among those of the inhabitants visited by the troops. This intelligence was brought to Gibraltar by the Hyperion, the master of which inadvertently mentioned the fact, and he was forthwith ordered

benefit of such restrictions. In neither of the two former countries, has a single case of the disease as yet occurred; although their circumstances are in all respects, more favorable to its ravages than those of either Russia, England, or France. There is but one way in which this remarkable exemption can be accounted for, and that is, by the fact that those nations, more than any others in Europe, have persevered in the observance of rigid quarantine. Had North America viewed this matter in a similar light, and acted with similar precaution, there can scarcely be a rational doubt that cholera would have still remained a stranger to us. Guarded on every side by an immense ocean, the western continent was peculiarly favored in its seclusion from this pestilence. It was scarcely possible, except by a rare concurrence of circumstances, to convey so volatile a poison as that of cholera across an ocean 3000 miles wide; and we find, accordingly, that during an unrestricted intercourse, of more than two years, with infected cities, but three such concurrences took place. How easily, then, by the mildest quarantines, (by such quarantines as would have extended to rare instances only,) might this desolating pestilence have been excluded, forever, from the western world. I might, were it necessary, enumerate many particular instances in which cholera has been excluded by quarantine restrictions; a few, however, will be sufficient.

to Port Mahon. Two Portuguese vessels also arrived from Oporto, and were likewise ordered off. This is the first account of the cholera in either Portugal or Spain."

The following is related by Kennedy, (page 204,) and I shall give it in his own words :

“ Taking advantage of the terrible example afforded in Mauritius, the Governor of Bourbon, a neighboring island, distant about two degrees, adopted sanitary precautions to exclude the contagion. On the 7th of January, however, a vessel called the Vic Var, from Port Louis, arrived off Bourbon, and had intercourse with the shore.

“ The cholera broke out several days afterwards in the town of St. Dennis. Nothing dismayed by this unfortunate circumstance, the governor ordered cordons of troops to be posted, in order to cut off all communication with St. Dennis, the focus of the malady ; and a lazaretto was established for the reception of such persons as might be attacked. Cordons were also established for their preservation, at St. Susanna, St. Andre, and St. Benoit ; but in the consternation which seized the inhabitants of these parishes, they dispersed to seek safety in the interior of the country. The alarm created by the pestilence in Bourbon, and the vigorous proceedings of the governor, Baron de Mylius, may be conceived from the concluding sentence of the order of the day, which was, ‘ *Surveillance ou la mort.*’ The consequences of these measures corresponded to the decision with which they were carried into effect. The cholera did not extend in Bourbon, as it had done in Mauritius, and the whole number of the persons attacked, scarcely amounted to a few hundred.”

The following extracts are from the work of Mr. Orton, one of our most respectable authorities :—

“ Separation and quarantine had been extensively practiced in one of the divisions of the Bengal army, and found very useful,” (page 315.)

“ It was immediately opposed by quarantine, by the governments both of Persia and Russia, and considerable evidence exists of such measures having been partially effectual. Thus it appears that Shiraz was by that means saved from it for one season : the very same circumstances occurred at St. Petersburg ; and various insulated bodies of people have been thus protected in its course through Russia. And the Pasha of Egypt is stated, by M. de Jonnes, to have by this means saved his country from its ravages,” (page 336.)

“ In India no means of precaution against contagion appear to have been practiced, with the trifling exceptions already stated ; and there are few bodies of people separated from the rest of society, by whom we might learn whether segregation would afford any immunity from the disease : but in every district there is at least one large jail, where of course great restriction is placed on intercourse ; and we certainly find, that in these communities, remarkable differences in the times of attack, from those of the neighboring population, or entire exemptions, are frequently observable. At Cannanore, on the Malabar coast, the disease appeared in a suburb next to Tellicherry, a neighboring town, where for some time it had been prevailing. For some days it lingered about the same spot, and then spread over the town ;

but it never reached the small fort, (with I believe very few inhabitants,) a mile to the north, until two months afterwards ; when it broke out in the jail in the fort, and in the course of a week attacked twenty-nine of the prisoners ; but never extended beyond the walls of the jail. A similar fact was observed during a second visitation of Cannanore. The disease got from thence into the jail in the fort of Tellicherry, but was almost entirely confined to it. So at Callicut, the disease broke out in the middle of October, but the jail did not suffer till the end of December. So at Madura, too, the disease appeared in the beginning of December, continued very prevalent in January, but did not reach the jail till the end of that month : from which time it attacked thirty-two, and destroyed ten of the prisoners in three weeks. When the epidemic prevailed first at Bellary, though it affected the inhabitants and troops generally, with some severity, the jail, containing five hundred prisoners, which stood detached and surrounded by a high wall, entirely escaped, except one case, which recovered. In Bengal, too, the same facts have occurred. ‘In the great native jail at Alypoor, containing several thousand persons, scarcely a case appeared, whilst prisoners encamped at the outposts, laboring in the sun, and sleeping in mud buildings at night, were very sickly ;’ but this Mr. Jameson attributes to the airy situation of the jail. ‘So also the dry jail of the court of requests, containing four hundred prisoners, continued nearly exempt.’ ‘At Sharon, the only place left unaffected was the jail, which was clean, airy, and situated in an open space at a dis-

tance from other buildings. The same favorable localities nearly saved the Tirhoot jail.* * * So in Poornea, the lines of the provincial battalion and jail were quite exempt, when the disease was extensively fatal in the town.

* * * In Furruckabad, the jail and the artillery barracks, the former containing six or seven hundred prisoners, had not a single case, whilst the levy corps suffered severely.' In Burdwan the same fact was still more remarkable. The disease is stated to have been there, ' dreadfully destructive ;' and Mr. Jameson remarks : ' It is singular, that during the period of the greatest mortality, the persons mostly affected were the sepoys and well-fed inhabitants of the town, whilst the convicts and debtors in the civil jail, remained healthy, until the rains, when they alone were attacked.' At Goruckpore, the disease was very severe, but the jail entirely escaped. Let it be remembered, too, that the class of persons thus so often exempted, were such as in other circumstances were found most susceptible ; and when the disease actually did get footing in the jails, it was often very destructive," (pages 339 and 340.)

" In later periods of the progress of the epidemic, the preservative effect of insulation of bodies of people, has been very distinctly shown ; as in the clear facts stated by the London College of Physicians, of the colony of Sarepta and others, and the military school at Moscow being thus entirely protected from the disease, though it was raging around them. And nothing can be more strong than the following instance related by Dr. Keraudren. ' In 1822, the approaches of the cholera induced

M. de Lesseps, the French consul in Aleppo, to take refuge, with all who chose to accompany him, in a garden at a little distance from the town. His asylum was surrounded by walls and a wide trench. It had but two doors or gates; and while the scourge was abroad, he admitted nothing from the outside, without previously subjecting it to the precautions observed in the lazarettos. This colony, of at least two hundred persons, had not a single case among them, while in eighteen days the cholera swept off four thousand persons in the town," (p. 341.)

The facts here quoted, and which are corroborated by the most respectable testimony,* afford satisfactory proof that cholera may be excluded by sanatory restrictions, even *by land*. It will hardly be contended that the airy situation of some of those jails may account for their exemption, since it is notorious that cholera pays no respect to localities: nor will it be said that the inmates were protected by insusceptibility, since the disease generally made dreadful havoc after it once gained admission.

Although the people of this country have, very generally, acted in relation to cholera, as though it were an atmospheric, and of course an inevitable disease, there are, nevertheless, numerous instances in which the benefit of sanatory precautions has been made clearly manifest. It will be quite unnecessary, after what has been already advanced, to enumerate the many facts of this kind which have become publicly known. There is one,

* Bengal and Madras Reports.

however, of so striking a character as to demand notice. It is that of Folly Island. The information on this subject is derived from the official report of the Intendant of Charleston, so that its accuracy may be relied on.

Some time in October, 1832, the brig *Amelia*, with one hundred and eight persons on board, sailed from New York, where cholera was still prevailing, for New Orleans. On the sixth day out, sickness commenced on board, some dying in a few hours, and others lingering for several days. The physicians on board pronounced the disease to be cholera, and twenty deaths occurred at sea. On the 30th of the same month the brig was stranded on Folly Island, which is about ten miles from Charleston, and in a day or two afterwards the disease began to spread among the inhabitants of that island. All access to the crew and passengers, or the sick on the island, was rigidly interdicted by the civil authorities of Charleston, and no intercourse at all allowed, except by the written permission of the intendant, or one of the city wardens. By the authority of the governor, a detachment of the city guards was posted on the island, and two guard boats were directed to cruise by night, to prevent any evasion of this order. Several persons who had had intercourse with the passengers on board the infected vessel, were repulsed in attempting to enter Charleston, and having been sent back to the island, there died of the disease. The result of these rigid measures corresponded well with the decisive manner in which they were executed: the populous city of Charleston has remained up to this time a stranger to cholera;

although Folly Island, but ten miles distant, and with but few inhabitants, has been severely ravaged by the disease.

3. It has been already stated that the poison of each contagious disease differs from that of every other, in its power of communicability; so that there are no two which affect an equal number of persons. Of all the contagious poisons with which we are acquainted, there is none so powerful in this respect as the poison of small-pox; and yet, powerful as it is, it will not affect every one who comes within the sphere of its influence. Many persons have, before inoculation was discovered, industriously endeavored to catch the infection, by frequenting the chambers of the sick, but without effect; and yet these same persons, some months or years afterwards, have been attacked with the disease.* So it is, but to a much greater extent, with measles, hooping-cough, scarlatina and other contagious diseases; very many persons may be exposed to their poisons, whose insusceptibility will protect them from disease.

Fortunately for mankind, cholera forms no exception to this rule; but on the contrary, if properly understood, affords a more extensive immunity than almost any other disease. Besides those persons whose constitutional peculiarities will, under all circumstances, protect them from its attack, there is a large majority of those who really are susceptible, that will not contract the disease, even after exposure to its poison, provided they

* Huxham's Treatise on Fevers, Small-pox, &c.

avoid the causes which are known to develop it. In this particular, cholera differs very much from all other diseases, whether local or contagious: for, although it is probable that there is no specific disease whatever, whose development may not be, in some degree, assisted by the supervention of exciting agents, it is very certain that there is none in which this assistance is so clearly manifest as in cholera. An extensive observation of facts will justify us in the inference, that of ten persons impregnated with the poison of cholera, not one may ever have the disease, provided they avoid all exciting causes; while, on the other hand, not one of the ten will escape it, if, through ignorance or negligence, they subject themselves to exciting agents. They who are sufficiently enlightened to know the exciting causes of cholera, and are at the same time sufficiently prudent to avoid them, have but little to dread from exposure to its poison. But unfortunately the number of those is as yet comparatively small, and this is one reason that the disease is so extensive in its ravages.

It is then admitted by the contagionists, that constitutional insusceptibility, together with an avoidance of exciting causes, will protect many persons from the poison of cholera, even should they have been exposed to it in its most concentrated form;—and in this they contend there is nothing which should militate against their doctrine, since the same is true of other contagious diseases. The non-contagionists, however, seem to think differently; and one of their principal reasons for asserting that the disease is *never* communicated, may be found

in the fact that it is not *always* communicated! Nothing is more common than to hear them (even physicians) say, that cholera cannot be contagious, because if it were they must certainly have taken it, as they had frequently visited the bedsides of the sick! Are they not aware that some of them might have visited patients with small-pox,*—that many of them might have visited patients with measles,—and that a great many of them might have visited patients with scarlatina,—without contracting those diseases? and if so, why should they make this an objection to the contagiousness of cholera?† Besides, they ought to consider that if the disease were not contagious, the difficulty of accounting for their exemption would be much greater than it is, as they would, in that event, be constantly breathing a poisonous atmosphere without being the least affected by it.— Were the disease other than contagious, every breath they drew, from morning till night, and from night till morning, would drug them with its poison: and it would certainly be much more wonderful that the system should be able to resist a deleterious agent, under those circumstances, than under transient exposure.—That

* Vaccination itself often fails.

† Persons have swallowed the “black vomit” of yellow fever, the “rice-water” of cholera, have slept in the beds of the sick, worn their clothes, and performed a variety of other disgusting experiments, with a view to test the contagiousness or non-contagiousness of those diseases. Such experiments, however, prove nothing on either side: for, if they should fail to communicate the disease, the contagionist will insist that the experimenters were insusceptible; or else that the poison has a *different* source. If, on the other hand, the disease should be communicated in every instance, the non-contagionist will find a ready explanation in the “coincidence” of either “local origin,” or “atmospheric intemperament.”

out of a population of one hundred thousand persons, who were constantly and equally exposed, there should be but five thousand* (one out of twenty) affected, would certainly be more difficult to account for than that a few hundreds, who had been occasionally exposed at the bedside, should have escaped.

The contagionists do not contend that cholera may be communicated to *every* one,—nor do the non-contagionists admit that it may be communicated to *any* one :†—it is, therefore, only required of the former, to prove that it has been communicated to *some*; while it is the duty of the latter, to disprove that it has been communicated to *any*. It is idle, then, for the non-contagionists to state those cases, in which all will admit that the disease has not been communicated; since no amount of such negative evidence would be sufficient to disprove one of those positive facts upon which the contagionists insist.

Besides the unequivocal facts already stated, and which should, of themselves, place the contagiousness of this disease beyond the power of cavil—there are others which, although somewhat equivocal in their character, go far, nevertheless, towards establishing this truth. I shall only advert to a few them: When cholera enters a

* This was the maximum of the cases in Baltimore.

† There is a sect who contend that cholera is not only contagious, but atmospheric also! That is to say, its poison may be communicated from one human body to another, besides being *generated* in the atmosphere! This is certainly a wide view of the subject, and whoever undertakes to defend such doctrine, needs be well fortified with argument, as it will be incumbent in him to answer the objections on *both* sides of the question.

house, it generally attacks several of its inmates, and not unfrequently sweeps off every member of the family; and this, too, in vicinities where other families totally escape it. This, as a general fact, is notorious in every country that cholera has visited, and has never been denied, even by the non-contagionists; I leave it without comment.

It may be seen by reference to statistics on the subject, that physicians, nurses, undertakers, and grave-diggers have, in many instances, suffered much more from cholera, in proportion to their numbers, than any other class of people. Dr. Burrel says, (page 9 of the Bombay Reports,) "I am cautious in reporting the cholera not infectious (contagious): almost every attendant in the hospital, during the short space of six days has had the complaint; and there are about thirty attendants attached to the establishment. The admissions from the regiment bear no proportion to the number of the attendants who have been taken sick." Chapman, England, Train, and many other respectable surgeons in India, state similar facts in their reports to government; and when we come to make particular investigations on this subject, we find such to be the case much more frequently than is generally represented.

If, instead of counting the number of attendants who die of cholera, we extend our inquiries to those who are *attacked* with the disease, we shall be able to form a more correct estimate of its contagious character; for it is well known, that it can be almost invariably cured if treated judiciously in its forming stage; and that none

are so likely to attend to it, in this stage, as medical men and their subalterns. We are told, for example, that the physicians of Baltimore suffered but little from cholera, because, forsooth, there was but one of their number who *died* of the disease. But on inquiring into the number who were seriously attacked by it, I am, myself, able to count thirty, and in all probability the number was much greater. Supposing, however, that there were no more than thirty attacked, and that the practicing physicians of Baltimore amounted altogether to one hundred and forty, which was the utmost; this will leave a proportion of more than one to five of their whole body who were affected with the disease. How was it with the citizens in general? Had one out of every five an attack of cholera? if so, there must have been twenty thousand cases in the city; instead of this, however, it is ascertained that there were not five thousand altogether. Thus it appears, at the lowest calculation, that the number of physicians attacked in Baltimore, was as four to one of any other class of citizens; and this, too, in a city where they are said not to have suffered particularly from the disease!

In the Baltimore alms-house, several of the attendants died, and nearly all the rest, medical as well as menial, saved themselves by the timely use of medicine in the premonitory stage.

If we estimate the proportion of attendants who actually die of cholera in the country, we shall find that, in many places, it exceeds five hundred to one of any other class of inhabitants!

It may be well to notice in this place, some facts which are stated to have occurred, at different times, among the troops in India; and which, at first view, would seem to form a strong objection to the doctrine of contagion. These facts, though numerous, are all of the same character; and one explanation will, therefore, serve for the whole.

There has prevailed in India, from time immemorial, a *local* disease called cholera. This disease is always confined to low jungly districts, and never appears even in them, except during the hot and rainy seasons of that climate. Although, in most respects, it closely resembles the disease now under consideration, yet there is nothing in its character which ever led to the suspicion that it was contagious. Like diseases dependent on malaria, it is uniformly extinguished by cold, and never, in any instance has it been known to spread beyond the sphere of its local origin. When the contagious pestilence which is now among us, made its appearance at Jessore, it was first mistaken for the local cholera. A little further observation, however, soon decided that it was an entirely new disease; for, besides being more malignant than that which heretofore prevailed, it was found to pay no respect either to season or locality. Radiating from Jessore, as from a centre, it soon diffused itself in every direction, visiting districts where cholera was before unknown, and prevailing in seasons which had never failed to extinguish the local disease.

The existence of two diseases, so closely resembling each other, caused them to be often confounded; and

this has given rise to many contradictory, and apparently anomalous facts. It has been observed, for instance, that some bodies of troops, infected with cholera, have spread the disease in all the towns and villages through which they passed ; while others, similarly affected, have commingled with healthy troops without communicating a single case of the disease. These, and all such facts may, however, be easily reconciled by supposing that in the former case, the troops were laboring under the contagious cholera—and that in the latter they had, as is common, carried in their systems from some infected districts the seeds of the *local* disease.

What makes this explanation the more satisfactory is, that facts of this description have happened no where except in India; nor are they to be met with even in that country, except during the hot and rainy seasons, and in the vicinity of those districts where the local cholera is known to prevail.

4. In contemplating the innumerable effluvia which emanate from the different species of the vegetable and animal kingdoms, we find them as various as are the sources whence they issue: some fragrant, some fetid, some pungent, some mild, some extremely volatile, others extremely fixed, and others again, of which our senses take no cognizance, but which several of the inferior animals can appreciate. So much are they varied, that notwithstanding their infinite number, there are no two in all Nature which are known to be precisely alike in a single attribute. How unphilosophic is it, then, to argue that any two of them should be precisely alike in a

single manifestation! Yet such is the argument of the non-contagionists, when they tell us that "the sudden increase and decline of cholera are incompatible with the laws of contagion." What do they mean by the *laws of contagion*? The laws of small-pox are all different from the laws of measles; and the laws of measles from those of mumps, scarlatina, plague, syphilis and every other contagious disease with which we are acquainted; why then should not cholera, like other contagions, have its *own laws*? Mumps spreads less rapidly than small-pox, small-pox than measles, measles than cholera, cholera than influenza; and there is no reason why some disease may not hereafter appear, which will spread more rapidly than any of them.

If we were acquainted with all the contagions that *can* be generated in the human body, and had ascertained that it was impossible for any one of them to become generally diffused over a city in five weeks, we should be justified in asserting that the increase and decline of cholera were incompatible with contagion, but not otherwise.

If we take, as a familiar example, the effluvium which emanates from goats, and suppose it a poison capable by communicability of producing cholera, it is easy to conceive that it might be diffused over a large city, even in a much shorter period than five weeks; more especially if, like cholera, its latent period were a short one.*

* By the latent period of a poison is meant the time it will remain in the system before developing the disease. This period is in many diseases very indefinite, and we do not know any two in which it is precisely the same.

How absurd it is, then, to object to the contagiousness of cholera on the ground of its sudden increase and decline!

5. It is by no means ascertained that persons who have had cholera once, in its true form, and who have completely recovered from its effects, are liable to a second attack. We have the most respectable authorities to show that immunity from a second attack of this disease is as certain as from any other contagion, not even excepting small-pox. Orton (page 444) says, "The same immunity from secondary visitation was observed in every quarter in which the epidemic prevailed, and we should perhaps be not far wide of the truth, were we to affirm, that of the many myriads attacked, the returns of the whole country do not afford a score of well authenticated cases of a recurrence of the disease, after the removal of the debility, and every other consequence, of the primary attack."

But even admitting that cholera may be contracted several times by the same individual, there can be no good reason for urging this as an objection to its con-

Its general range, is, however, between six and twenty-one days. In cholera it is shorter than in any disease with which we are acquainted, besides being extremely irregular. In this disease, the poison does not, in many instances, require more than six hours for its development; although it is sometimes protracted beyond the period of two weeks. Even this fact has been caught at by the non-contagionists, and affords us another specimen of the logic employed against the contagiousness of cholera. Their argument is this: the latent period of small-pox is from six to twenty-one days, and it is a contagious disease; but the latent period of cholera is from six hours to twenty days, *therefore* cholera is not contagious! Hydrocephalus is contagious, and yet there is no regularity in its latent period. It is sometimes developed in nine days, at other times not till nine months!

tagiousness, since every contagious disease differs, more or less, from every other, in the immunity which its primary attack affords. Measles affords less immunity than small-pox; scarlatina still less than measles; and syphilis affords none at all.

Although small-pox gives a greater immunity than any other disease, there are, nevertheless, many instances in which it has been contracted a second time. Indeed, we are informed by Araan, an Alexandrian physician who wrote in the seventh century, that small-pox at that early period of its history, was usually contracted a second, and even *a third time* by the same individual.

6. We are told that there is no ostensible source whence the poison of cholera may be supposed to emanate, and that, therefore, the disease is not contagious: or, in other words, that because we cannot *see* the source of an invisible poison, there can, therefore, be no invisible poison! Cholera, it is true, has no pustules from which its poison may be supposed to emanate; but then it has a clammy exudation, which bedews the whole surface of the body, and which is very generally attended with a peculiar odor. Why may not its poison proceed copiously from this source? and why may it not also have its origin in these watery evacuations, which are characteristic of the disease?* But even were there no

* I am not aware that any experiments have yet been made to determine whether cholera may be communicated by inoculation, with either the exudation which bedews the surface of the body, or with the characteristic rice-water discharge; but I think it not at all improbable that it may yet be shown that cholera, as well as *some* other contagious diseases, may be communicated by inoculation.

cutaneous exudation, or rice-water evacuation, still it is easy to conceive that its poison might be exhaled from the whole superficies of the body. How is it with mumps and hooping-cough—are they not contagious? and if so, where are the sources of their poisons?

Such are the general objections of the non-contagionists; and I trust it will be decided by every impartial mind, that the facts and arguments which have been here advanced, afford satisfactory refutation of them. Several of those objections apply against the contagiousness of small-pox with greater force than against that of cholera; and nearly all of them are of so frivolous a character as to have been unworthy of notice were it not for the high authorities by which they are reiterated.

We frequently hear it said, that “the facts are strong on both sides of this question.” This, however, is an assertion to which the contagionist can by no means subscribe: there is no well authenticated fact which may not be reconciled with contagion; while there are thousands which can be reconciled with no other doctrine. The facts of the non-contagionists are all included under the six general objections which have been just considered; and if these objections have been all invalidated, it is impossible there can be strength in any of the particular facts which they embrace.

Before the non-contagionist can take ground as respectable as that which the contagionist now occupies, it will be necessary for him not only to invalidate every one of the many positive and undisputed facts upon which the contagionist insists, but he must also produce

a non-contagion theory, which shall be supported by as great an amount of positive and negative evidence as now sustains the doctrine of contagion. As it is, the cases are very different: there are in support of contagion, innumerable facts of a positive character, which the non-contagionist cannot deny, and which he has failed to invalidate. On these facts the contagionist has built a theory, by which he is enabled to explain nearly all the progressive phenomena of cholera; and against the truth of which the non-contagionist, after fifteen years' observation, has not been able to produce one valid objection.

On the other hand the non-contagionist, after having on a few partial facts, (all of which can be reconciled with contagion,) raised hypothesis after hypothesis, till conjecture itself became exhausted, has at length abandoned the subject as one of “deep mystery;” and now, after the disease has been fifteen years travelling, acknowledges himself as ignorant of its mode of progress as he was when it first appeared! From this it will be seen, that the non-contagionist has no theory of his own, and that his whole occupation consists in endeavoring to subvert that of the contagionist.

If we even suppose that the non-contagionist had succeeded in all he aims at—that is to say, if he had not only substantiated his objections against contagion, but had invalidated every positive fact that is brought in support of it, he would, after all, have only proved to us that contagion is one way by which cholera does *not* advance; and thus, after fifteen years labor, he would

but have convinced us of our ignorance, without having made one step towards enlightening it ! But even this much he has not accomplished ; and his fifteen years' labor, if not absolutely mischievous, has, at all events, been productive of no good : for he has given us no new theory ; and the increasing number of contagionists proves clearly, that in his efforts to subvert the old one, he has entirely failed.

EVILS OF THE DOCTRINE OF NON-CONTAGION.

The evils which result from the very general prevalence of the doctrine of non-contagion, are so extensive in their bearings, and of so manifold a character, that a volume would not suffice for their discussion. It is under the shout of non-contagion, that cholera achieves its most frightful victories; and, unfortunately, this is the shout with which the pestilence has been greeted at almost every step of its desolating march.

I shall merely glance at a few of the more prominent of these evils, and such only as have been manifested in our own country.

The first, and most momentous of them is, the introduction of the disease into the western continent; and that this immeasurable calamity is attributable to the error of non-contagion, hardly admits of a rational doubt. Had the brig Carricks arrived on the coast of Spain or Italy, after having lost forty-two of her passengers by cholera, it is very certain that the remainder would not have been permitted to land till after they had undergone a purification of at least forty days. At Quebec, however, this infected vessel was allowed to land one hundred and thirty-three of her passengers on Grosse Isle, as soon as she arrived; and the consequence was,

that shortly afterwards the disease broke out both there and in Quebec. It must appear evident, from this circumstance, that the authorities at Quebec made nothing more than a mere feint to resist the incursion of cholera. Had they been fully persuaded of the truth of its contagiousness, it is not credible that they would have allowed these passengers to land until all chance of danger had been removed: and if they did so; knowing the disease to be contagious, such culpable negligence would have merited the execration of the whole western hemisphere. How many thousands of valuable lives might have been saved, and what desolation of every kind averted, had this infected vessel been only subjected to such quarantine restrictions as are every day practiced in Spain and Italy! Surrounded as we are by immense oceans, it was not necessary to cripple commerce in order to shut out this pestilence; for, during two years of most extensive intercourse with Europe, but three vessels arrived in North America on which it was necessary to impose rigid quarantine; and these were all passenger-vessels. In South America, to which there is but little emigration from Europe, we do not hear that a single vessel has arrived, on board which persons had died of cholera; so that the whole western world presents, during two years intercourse with infected places, but three instances in which there was danger of importing the cholera. Two of these occurred in a city to which emigration was most extensive, and in that city the disease first appeared. The conclusion is irresistible, that if these three vessels had been placed under rigid quarantine, the pestilence

would have, to this day, remained a stranger to our shores.

One would have supposed that the manner in which the cholera was introduced into Quebec, if it did not completely unfold to the non-contagionists the error of their doctrine, would have at least led them to act towards the disease as though it *might* be contagious: such, however, was not the case; for no sooner had this pestilence landed on our continent, than a hue and cry was raised against the idea of its contagiousness, as one fraught with mischief. Nearly every editor in the country united in this cry, and the consequence was, that the dreadful stranger was permitted to enter almost every town under the mask of non-contagion. It is true, after the disease had spread itself extensively, some partial efforts were made to resist its further diffusion; such efforts, however, were then too late: it had already posted itself at too many points, and the scattering tide of emigration afforded too many facilities to its onward march.

But although it might have been impossible to resist the progress of cholera, after it had once obtained a firm foothold in our country, it is very certain that much might have been done towards checking its ravages, had it not been for the erroneous views of the non-contagionists. The experience of fifteen years seemed entirely lost on them: the local-origin sect had never seen cholera, in all its travels, pay the least regard to cleanliness,* yet

* When filth is so extreme as to exercise a debilitating influence on the system, it will no doubt serve as a predisposing cause to cholera, as well as to all

cleanliness was almost the only weapon with which they opposed it! The atmospheric sect had never seen the disease prevail, as an epidemic, in the country; yet did they warn the citizens against leaving the *infected* towns! Every one had noticed that cholera was most destructive in condensed crowds, yet their hospitals were so constructed as to crowd thirty or forty patients in a single room!

So far from having made judicious efforts to check this disease, it would appear, at least to the contagionist, as though every thing had been done with a view to promote its ravages. Those funds which should have been employed in providing insulated hospitals, constructed so that each patient would have a separate apartment, were senselessly squandered in sweeping the dust out of the streets, after they had been already sufficiently cleansed; and this, too, when experience had instructed us that the cleanest streets were oftentimes severely ravaged, while the filthiest were entirely spared.*

After the disease entered a city, it would seem as though nothing was neglected that could assist its propagation: the sick, instead of having been provided with

other diseases. No degree of filth, however, will produce this disease, nor will any degree of cleanliness avert it: its whole history proves that the cleanest palaces are as amenable to its ravages as are the filthiest hovels; provided only that the inmates be equally susceptible.

* It is certainly desirable, both on account of health and pleasure, that the streets should be kept, at all times, as clean as possible. But the evil here complained of is, that cleanliness should have been looked to as the *summum bonum*, while means infinitely more important were but indifferently attended to, if not wholly neglected.

suitable hospitals, such as they would have been glad to retreat to, were left scattered about in their own dwellings, where each one became a fountain of disease. Multitudes who were well, flocked without the least necessity, to the bedsides of the sick ; afterwards commingled with those who were more prudent than themselves—and seemed actually industrious in sowing the seeds of death. The dead, instead of having been immediately and privately interred, were generally kept the usual time in state ; were then, not unfrequently, carried into crowded churches, and afterwards numerously attended to the grave. While all this was going on, and while the atmosphere of the city, from the number of the dying and the dead, was becoming every day more and more contaminated with the poison, the citizens were besought—“*as they valued their lives*”—to stand their ground, and by no means retreat to the country ! They were told, as a reason, that the disease would prevail just as much in the country as in the towns; besides the greater difficulty they would incur of obtaining physicians ! Numbers of our most valuable citizens were governed by this advice ; and numbers of them paid the forfeit of their lives. There were many thousands, however, who took better counsel. They were governed by their own common sense. They saw the city mourning in the gloom of pestilence, while the country was smiling in the enjoyment of health ; they chose the latter, and thus saved their lives. It is true that some few, out of many thousands, died shortly after they had reached the country ; but in all such instances, the deaths occurred

in so short a period after their removal, as to render it evident that they had carried with them the seeds of the disease.

It is well known that the proportion of deaths in hospitals has been, every where, much greater than in private practice : so dreadful has been the mortality in those institutions, that popular prejudice has oftentimes been strongly excited against them ; and, in some instances, infuriated mobs have threatened them with destruction. This extraordinary mortality is variously accounted for : some attribute it to the progress which the disease has made before the patients can reach the hospital; some to the bad consequences of removing them from a distance ; while others contend that it is owing to the depraved habits, and broken down constitutions of the class of patients who are generally taken there. Experience proves to us, however, that all these circumstances combined would be insufficient to explain the fact : for we find in camps, where the patients are vigorous in constitution, and regular in their habits, where attendance is prompt, and where removal is unnecessary, that the same dreadful mortality prevails as in hospitals, jails, and alms-houses. In short, we find this to be the case in all crowds whatever, whether situated on land or sea: and the rational inference is, that it is the *crowd* that occasions it.

If the malignancy of cholera bear any proportion to the quantity of contagion imbibed, it is easy to conceive that the copious and concentrated poison, to which the patients in our hospitals were constantly exposed, must

have rendered their recovery extremely difficult, even under the most skillful treatment. It was not uncommon to see thirty or forty of them in a single room ; their beds not more than three feet apart, and the windows carefully closed, as if to prevent the escape of the accumulating poison !

These are but a few of the practical evils of the doctrine of non-contagion ; yet they are sufficient to show that, like all other errors, its operations are mischievous as far as its influence extends.

We are told that the doctrine of contagion is full of evils ; but its evils, even admitting it were *false*, would be only as dust in the balance, when compared with those of the doctrine of non-contagion, supposing the latter to be false. Were the doctrine of contagion false, the worst that could result from its prevalence would be the losses and privations consequent to commercial restrictions, together with occasional desertions of the sick ;* whereas, if the doctrine of contagion be true, that

* The idea that the sick would be generally deserted, were cholera universally recognized as contagious, is a mere bug-bear. Such was not the case in small-pox, even before the discovery of vaccination ; and such never can be the case, in any disease, unless human nature shall change its character. We are not acquainted with any poison, contagious or otherwise, of which there are not many persons insusceptible—and this is especially the case with cholera. It has been already stated, that out of ten persons exposed to its contagion, it is probable that, by proper care, the disease will not be developed in more than a single instance. Besides this, we are informed by the most respectable authorities, that they who have had the disease once, are insusceptible of it a secon'd time. But even were all susceptible of cholera, there would still be found a sufficient number whom ties of kindred, feelings of benevolence, or motives of interest, would prompt to perform the necessary offices for the sick. If, however, there were no such persons to be found, still that principle would be an unjust one, which would *blindfold* men—in order

of non-contagion must be productive of evils the most calamitous that can befall our race. Human sufferings immeasurable, and deaths by myriads, must result from its operation. Almost every town may charge it with the loss of some of its most valuable inhabitants; and there is scarcely a family that may not ascribe to it the death of a relative or a friend.

It is asserted, too, that contagion is a frightful doctrine; but it is certainly a doctrine of consolation when compared with that of non-contagion: the one points out to us clear paths, by pursuing which, the danger may be avoided; the other does not even flatter us with the hope of a refuge. The contagionist assures us that it is only by exposing ourselves within certain peripheries, that we *can* become victims of cholera; and that even within these peripheries there are many chances of escape. The non-contagionist affirms that we are *nowhere secure*;^{*} that town and country are equally obnoxious to the "mysterious" destroyer; and that any attempt to escape it is but a flight in the dark. Conta-

that they might discharge those duties. There would certainly be much less evil, and far more morality, in allowing one man to die through neglect, than in oecasioning twenty to die through *deception*.

* The following extract from a work on cholera, lately published in New York, affords a pretty fair specimen of the dogmatism by whieh multitudes were no less terrified than deluded:

"When cholera appears in any place, and begins to spread, it is utterly vain to remove, with the hope of fleeing from the disease. The remote causes, which we have placed in the air, have already excited the predisposition in all who have inhaled it; and *however rapidly they may leave the city, or however distant they may flee, they carry with them the epidemic constitution or the predisposition.*"

gion, therefore, holds out to us an asylum; while non-contagion abandons us to our fate.

It is much to be regretted that the non-contagionists, although professedly ignorant of the mode by which cholera proceeds, should, nevertheless, have undertaken to speculate on its future movements. Their predictions, on this subject, were of course nothing more than mere guesses; and yet these guesses were made in such a tone of confidence, that multitudes were deceived by them. Before cholera reached our shores, it was boldly asserted, by some of them, that it would never cross the Atlantic; others admitted that it might cross the Atlantic, but that if it did, it would come to us so modified by the pure air of the ocean as to do us but little mischief. After the pestilence did arrive on our continent, and presented itself in its own true character, we were told that its ravages would be confined to a "certain vein in the atmosphere," and that it would never reach as far south as New York! It did reach New York; and it was then loudly asserted that filth was the cause that produced it, and that places which were clean would escape it. It ravaged places which were clean, as well as those which were not so, and it was then said that its presence depended on heat, moisture, or some other condition of the weather! It would be tedious to enumerate the many unfounded predictions to which non-contagion has given rise. But unfounded and contradictory as they were, some of them still continue to occupy the public mind, and to influence public measures; and this, too, after numerous facts have occurred which

demonstrate their falsity. It is such predictions as these that have bewildered the public mind, deceived public expectation, and brought merited opprobrium on the medical profession.

Among the contagionists there are no sects—and consequently there are no contradictory predictions. They all agree that cholera may visit any place, provided there be sufficient intercourse to convey it; and that it can visit no place unless such intercourse subsist. They all agree that cholera will every where manifest precisely the same character; and that it will be modified by no circumstance whatever, except the susceptibilities of its victims. Hence it will be seen, that the contagionists could not possibly have distracted the public mind; and the whole history of cholera bears witness that they have never deceived it.

PREVENTION OF CHOLERA.

The most important knowledge in relation to any disease is that which leads to its prevention : the knowledge that small-pox may be prevented by vaccination, is of infinitely more value to mankind, than if a remedy had been discovered by which that disease might be invariably cured. So with cholera : if it be really contagious, and if the character of its contagion be such as I have described it, its prevention may be carried even to a much greater extent than that of small-pox, if not to its total extinction ; and the knowledge of such a fact is vastly more important, than if we had discovered an infallible cure for the malady.

Under the presumption that cholera is contagious, and that its contagion is endowed with the properties which I have already assigned to it, I shall make some brief remarks on what I conceive to be the most efficient means of prevention.

In order to guard against the general incursions of cholera, as well as against its individual attacks, it is necessary to be particularly mindful of two facts : one is, that the poison which produces this disease has its source in the human body *only*; the other, that this poison is, in a majority of cases, incapable of producing the disease, unless assisted by an exciting cause. The prevention of cholera may, therefore, be considered under two heads : first, the means of avoiding its poison ; secondly, of obviating the effects of that poison after it has entered the system.

1. The fact that cholera is a contagious disease, will admonish every community, as well as every individual, of the propriety of avoiding all unnecessary exposure to its poison ; and it therefore becomes an object of great moment to determine, what are the most efficient means of guarding against such exposure. The employment of quarantine restrictions, with a view to prevent the incursions of this disease, is, at the present time, looked upon as nothing short of medical barbarism ; and when we consider how injudiciously such restrictions have been generally employed, we cannot be much surprised at the opprobrium which attaches to them. In many instances, they have been rigidly enforced under such circumstances as scarcely offered a hope of success ; while in others, their want of success may be justly attributed to the inefficient manner in which they have been executed. In Prussia, for example, an effort was made to guard, by the most rigid restrictions, a whole frontier against the invasion of cholera ; and that during a time of war : while in North America, where the prospect of success was most favorable, the disease was opposed by nothing more than a nominal quarantine. It is obviously a great error to employ sanatory restrictions at all, except where there is a rational prospect of success ; and, where such prospect does exist, the error is still greater not to enforce those restrictions with the utmost rigor.

Were I asked, under what circumstances I would be disposed to employ quarantine restrictions in relation to cholera ; I should answer : first, in all insulated places ; and especially such as are surrounded by an extensive

sea : and secondly, in every other situation where the intercourse with infected districts is of so limited a character, as to allow it to be completely cut off without subjecting the inhabitants to serious inconvenience.

Should cholera ever become extinct on our continent, (and we have much reason to infer that it may,)* it will be in our power, by judicious quarantines, to guard against its return, even without imposing on commerce any serious restrictions. It will, for reasons already stated, be entirely unnecessary to subject to quarantine laws, any other vessels than those on board of which persons have been sick of the disease ; and such vessels, from the fewness of their number, may be placed under the most rigid restrictions, and yet occasion but a very

* The opinion here expressed, that cholera would probably become extinct on this continent, was verified. There was not a case of this disease known to exist in any part of the United States, in 1849—previously to the arrival at New Orleans of a passenger ship from Havre, with cholera on board. Two passenger ships left Havre about the same date ; one bound for New York, and the other for New Orleans. The cholera broke out on board both those vessels, some time after they put to sea, and several passengers died on board of each. The New York ship was subjected to rigid quarantine on her arrival at that port, and the disease was thereby excluded from the city, although it spread all over the quarantine district. The New Orleans ship was permitted to enter the harbor without any restriction ; the consequence was, that the cholera spread throughout the city shortly after her arrival ; soon commenced travelling on its great highway, the Mississippi ; and, in the course of a few months, visited all the principal towns in the western states. This is at least the second occasion on which the ravages of this pestilence, in North America, may be attributed to the general disbelief in its contagiousness. There is scarcely a doubt that a rigid quarantine at Quebec, in 1832, and at New Orleans, in 1849, would, on each occasion, have excluded this pestilence. Nor is there any doubt that these quarantines would have been established, and enforced, had it not been for the reckless advice of mere theorizers, who, if they only had had a *suspicion* that they might be wrong, ought to have acted on the *safe* side—and scrupled to give advice which might bring upon millions of their fellow creatures the most dire calamity.

partial obstruction to commerce. It has been already observed, that during two years' extensive intercourse with infected places, but three vessels arrived in this country on which it was necessary to impose rigid quarantine: and even had it been considered expedient to prohibit those vessels from ever entering one of our ports, how trifling would have been the inconvenience, and how inconsiderable the loss, when compared with the evils of every kind, which the incursion of cholera occasions even in a single city—to say nothing of the desolations produced by it over the whole face of an extensive continent! It is calculated, that in the state of Louisiana alone, the pecuniary loss resulting from this scourge amounts already, to at least four millions of dollars! and if we could estimate the destruction of human life, the amount of human misery, together with the pecuniary losses which the whole country has sustained, even within the last twelve months, their magnitude would appall us. It is unnecessary to insist on the propriety of enforcing the most rigid quarantine in every instance where there is a rational prospect of its success; for did we entertain nothing more than a mere *suspicion* that cholera was contagious, we should even then be justified in making almost any sacrifice which would afford a probability of excluding so dreadful a pestilence.

The employment of sanatory restrictions by land, and especially between large commercial cities, offers much less prospect of success than by sea; as it is extremely difficult, and indeed sometimes impossible, to cut off all communication with the infected. Where the inter-

course is very extensive, as, for example, between New York, Philadelphia and Baltimore, it is scarcely possible to exclude the disease, even by the most rigid quarantine; and the evils resulting from the suspension of such extensive commerce are of serious magnitude. In all such instances, instead of wasting our efforts in vainly endeavoring to prevent the disease from invading us, it appears more advisable to calmly wait its arrival, under the protection of such judicious regulations as will enable us to extinguish it at its onset.

Those regulations are such as must suggest themselves to every one who is aware of the contagious character of the disease. It is necessary, in the first place, that every town should, before the arrival of the cholera, be provided with at least one hospital, (the number of hospitals will of course be determined by the size of the town,) especially designed for the reception of cholera patients. This hospital should be so completely insulated, as to be several hundred yards distant from any dwelling;—and so constructed, that each patient would have a separate apartment. The apartments should be spacious, well ventilated, and provided with the best of every thing necessary to the accommodation of the sick. The ablest physicians, and the most experienced nurses should be appointed; and all unnecessary intercourse between them and the other citizens strictly inhibited. Vehicles for conveying the sick, with their carriers, should be always found ready, at stated places; and these vehicles so constructed, as to afford comfortable beds, on which the patients might enjoy the recumbent

position,—at the same time that they would be entirely secluded from the public gaze. Those hospitals, with all their appurtenances, should, in short, be so judiciously constructed, and so well provided, as to present advantages to the sick, such as are seldom to be met with, even in the houses of our wealthiest citizens. Nothing which skill could devise, or money procure, for the welfare of the patients, should be spared in these institutions; so that instead of being looked upon, as is generally the case, with well-founded dread, they might be regarded, by every class of citizens, as asylums to which they would be glad to retreat.

It would not be necessary, under such circumstances, to persuade, and much less to force patients to be taken to the hospitals; as it would soon become known that the chances of recovery in these institutions were far greater than in their own dwellings. It is not probable, that among that class of citizens in which the disease generally makes its first appearance, an individual could be found, who would not be delighted to escape from the poverty and wretchedness of his miserable abode, to a place where he would find every comfort, and every attention. Indeed, the number of citizens, of any class, who might prefer remaining in their dwellings, would be inconsiderable; for, besides the superior advantages which such hospitals would afford them, they would, by removing to them, preserve their own families from the most dangerous exposure.

Were hospitals, such as I have here described, provided by every town *before* the arrival of cholera, and

the persons first attacked immediately conveyed to them, it is probable that the disease might, in almost every instance, be arrested at its commencement. It is certain, at all events, that by diminishing the points of propagation, the pestilence would be invariably checked, if not completely controlled.

To co-operate with these views, it is important that the citizens should be strongly impressed with the injustice, as well as the folly of exposing themselves unnecessarily to the influence of the poison. Did the evil of such exposure extend no further than to themselves, we might pardon, at the same time that we deplored their folly; but when, by such rashness, they hazard not only their own lives, but also those of their more prudent fellow citizens—their conduct is highly censurable.

All persons, whose circumstances will admit of their leaving the city, should at the first appearance of cholera, if not before its arrival, retreat to the country; and there remain until the disease shall have entirely subsided. By doing this, they will be certain of securing themselves; at the same time that their absence, by diminishing the chances of propagation, may tend, in no small degree, to the preservation of others. While in the country, they should avoid, as much as possible, all intercourse with infected places; and whenever such intercourse may accidentally occur, they ought, for some time afterwards, to be as strict in guarding against exciting causes as though they were residing in the city.

They who may have delayed their departure from the city till the poison has become extensively diffused,

should be particularly careful to avoid all the ordinary exciting causes for at least two weeks after their arrival in the country ; as there are many facts to show, that the disease may sometimes be developed at a period even much longer than two weeks after exposure to its poison.

We have strong reason to believe that the poison of cholera is emitted more copiously from bodies after death, than at any other period ; and this fact should forcibly admonish us of the propriety of early interments. As soon as a body is ascertained to be dead, no time ought to be lost in committing it to the grave ; and this office should be performed by as few attendants as possible. Funeral processions should, on such occasions, be avoided as being exceedingly dangerous ; and indeed every other unnecessary ceremony, which may occasion exposure to the poison, should be dispensed with. Every house, in which a death has occurred, should be well ventilated, besides being subjected to the influence of heat, light, chlorine gas, and other disinfecting agents ; and when circumstances will admit of it, the family should remove till after the different means of purification shall have been employed.

The negroes on plantations, instead of being grouped together in contiguous cabins, should, at the approach of cholera, be scattered as much as possible. Temporary cabins might be erected on different parts of the plantation, in each of which not more than a single family should be permitted to reside ; so that if the disease did chance to make an incursion, its ravages might be confined to a limited number. Had the planters in the South and

West, adopted this mode of segregation, instead of permitting their slaves to have unrestricted intercourse with each other, thousands of lives might have been saved by it.*

By the rigid observance of regulations such as these, I feel persuaded that the propagation of cholera may be in-

* The same is true respecting the soldiers of our army, and indeed respecting all *crowded* assemblages of men. If segregation had been promptly resorted to in all cases which were practicable, whenever the cholera was expected to invade a garrison or camp, there can scarcely be a doubt that very many lives would have been saved by it. The instances are very few in which segregation may not be conveniently practiced in our army, especially during times of peace; and I hold that the medical officer who neglects to recommend this measure, because *he* presumes that the disease is not contagious—is guilty of a grave neglect of duty, and one which ought to dismiss him from the service. It is obviously the duty of those who have charge of the lives and health of the soldiers of our army, to always act on the *safe* side, in matters of this kind, whenever it is practicable to do so, whatever may be their own speculations on the subject. It is safe, and it is generally practicable, too, to remove troops from crowded quarters to healthy country encampments, when cholera threatens to invade them; the experience of armies in every country has proved that it is *not* safe to keep troops in crowded quarters under such circumstances; and the medical officer who recommends that it be done, acts either from an unpardonable ignorance of the history of this disease, or else from an unjustifiable reliance on the truth of a *theory*. But it is not merely as respects cholera, that removal and segregation should always, when practicable, be promptly employed in our army. It is by no means *certain*, notwithstanding the great weight of authority on this subject, that yellow fever is not a contagious pestilence; and indeed there is the strongest evidence to prove that it is. As long, then, as there exists a *doubt* on this question, why not give the benefit of that doubt to the troops? This, it seems to me, would be only rational, just, and humane. Whenever a malignant disease of any description (it matters not whether it be *called* epidemic, endemic, or contagious) begins to spread in the vicinity of troops, they ought, whenever it is practicable, to be immediately removed to some healthy locality, and there encamped till after the disease shall have disappeared. If the disease be of *local*-origin, as the non-contagionists generally assert, there is then the *strongest* reason for changing the *locality*. If the disease be contagious, it is obvious that crowded quarters are most favorable to its propagation, and that the best prospect of escape is by segregation. In either view of the subject, there should be no hesitation as to the expediency of removal from an *infected* locality.

variably checked ; and that by paying, at the same time, a due regard to what I shall define to be the exciting causes, its total extinction may be very generally effected.

2. The knowledge of the fact, that a large majority of those who have imbibed the poison of cholera may, nevertheless, by judicious management, obviate its effects, will, at the same time that it emboldens physicians and others in the discharge of those offices which duty imposes on them,—impress upon all, the great importance of avoiding the causes which are known to act as excitors of the disease. Those causes, as has been before observed, are general and particular. The general exciting causes are all those whose ordinary effect is, either to derange the balance of the system, or to produce general debility. Sudden changes in the condition of the atmosphere ; inordinate exercise of the strong passions ; the noxious effluvia proceeding from filth, vegetable decomposition, &c. ; immoderate eating and drinking, and the employment of quack *preventives*, are among the most prominent of them.

The most effectual means of guarding against the first of these causes, are : to wear flannel next the skin ; to keep the feet dry and warm ; to avoid the night air ; and to adapt the clothing, as nearly as practicable, to the different changes of the weather.

The hurtful influence of the passions can only be obviated by avoiding the causes by which they are inordinately excited ; and of these each individual will judge best for himself. The passion of fear, which, from its depressing effect, seems to exercise a specific influence

in exciting cholera, is frequently aggravated by newspaper reports, and by exaggerated statements of the ravages of the disease. They who are particularly obnoxious to the influence of this passion should, therefore, abstain from reading those reports, and at the same time avoid all conversations on the subject.*

The next cause, or that of noxious effluvia, may generally be obviated by the removal of all nuisances, the employment of disinfecting agents, and of other means which conduce to general cleanliness. Personal cleanliness ought also to be strictly attended to ; and with this view, the warm bath should be resorted to at least twice a week.

Intemperance in eating, at all times injurious, is, during the prevalence of cholera, fraught with danger. Great prostration is generally experienced, even in the

* While it is true that *excessive* fear of cholera has a tendency to develop the disease, and probably does develop it in some rare cases ; it is perfectly certain that for one death which results from this cause, there are at least one hundred which are occasioned by the *want of a proper sense of danger*. A very large proportion of those who die of cholera, die because they have not sufficient apprehension of the disease, to induce them to employ medical aid during the *premonitory* stage, in which it can be almost invariably cured. Another large proportion die in consequence of their fearless indulgence in fruits, vegetables, and other exciting causes of the disease ; and there is yet another large proportion who fall victims to the pestilence by their reckless, and unnecessary exposure to its poison. Fear, then, in its general influence on a community, is most salutary ; and probably tends more than any other cause to check the ravages of this disease. This, I am aware, is a *heterodox* doctrine, but extensive observation and reflection have convinced me that it is true ; and I would therefore suggest, as “a preventive measure,” that boards of health, ought always to warn the citizens, as soon as the *first* cases of the disease appear, instead of suppressing, as they too frequently do, the truth on this subject. It is due to public safety, as well as to morality, that there should be no concealment—and any man who would deceive his fellow citizens in a matter in which all are equally and vitally concerned, merits the condemnation of the whole community in which he lives.

most robust constitutions, during the digestion of an inordinate meal ;—and when to this prostration, we add the debilitating influence of a specific poison, we shall be at no loss to understand why so many persons are attacked with cholera immediately after indulgence in what is termed a “hearty meal.”—By a hearty meal, may be generally understood, at least twice the quantity necessary for nutrition ; and although sound and vigorous constitutions are able, during periods of health, to resist, for a length of time, such repeated injuries, yet sooner or later a breach is made, and dyspepsia, or some other formidable disease, takes possession of the system. It is during the prevalence of epidemics, when the system of almost every one is, from exposure to a debilitating poison, reduced to a valetudinary state, that the evil consequences of such abuses are more especially manifest. “A hearty meal” has, during the prevalence of cholera, proved the last meal—to many an individual who, at other times, might have indulged in it with comparative impunity. It is therefore a great error to assert, that during the prevalence of cholera, or of any other pestilence, “our habits of living should be precisely the same as usual;” unless, indeed our usual habits be such as are precisely in accordance with the laws of health.

It is scarcely necessary to observe, that intemperance in drinking, is another very general, and very powerful, exciting cause of cholera. The corresponding depression which necessarily follows a high degree of excitement, leaves the system a prey to the deleterious agency of the

latent poison ; and it frequently happens that during the lethargy of debauch, the disease has made such rapid progress, that on waking, the drunkard finds himself in a state of hopeless collapse.

It is true that some of the most abandoned drunkards, escape this disease, while many of the most temperate, fall victims to it ; and this fact has led superficial observers to infer that intemperate drinking is an antidote to the cholera ! If, however, they contrast the proportion of drunkards who die of the disease, with that of the temperate, they will perceive the error of their conclusion. It should be remembered that all the drunkards who escape, have not necessarily imbibed the poison ; and that that portion of the temperate who are attacked, may have been exposed to a variety of other exciting causes.

The employment of nostrums, as “ preventives to cholera,” may be classed among the most mischievous of its general exciting causes. To those in health they are invariably injurious ; and to such as are not, they are never beneficial, unless indeed by the merest accident. When the system is so well balanced as to perform all its healthy functions, it is in the best condition to resist injurious agents of every kind ; and any attempt to *improve* on it, cannot, under such circumstances, fail to do mischief. It is, therefore, a great error for persons while in the enjoyment of health, ever to take medicine ; and especially medicine of which they know nothing, except from the interested statements of ignorant and unprincipled men. It is not until the system has so far lost its balance, that the derangement of its functions

becomes manifest, that medicine ought ever to be employed; and then, it is only the most skillful hand that should administer it. Municipal authorities should, therefore, protect the ignorant and the credulous from the evil of "preventives," by using all legal means to suppress the impostors who either *vend*—or administer them.*

To the general exciting causes here mentioned, may also be added, fatigue either of body or mind; long fasts; indigestible food, &c.

Having already made some observations on the particular exciting causes of cholera, it will only be necessary in this place, to enumerate a few of those which are considered the most powerful of them.

Among the articles of diet derived from the vegetable kingdom, cabbages, cucumbers, turnips, green corn, melons, cherries, apples, peaches, and pears, may be considered the most frequent excitors of the disease.

In the animal kingdom, crabs, oysters, clams, lobsters, and fresh pork, are the most powerful. The most dangerous medicines are, the various neutral salts, castor oil, magnesia and drastic purges.

There are, besides these, many other exciting causes too numerous to detail. In short there are but few

* What is here said of "preventives," is not meant to apply to the class of remedies which are so efficaciously employed in the *premonitory* stage of cholera; but simply to those nostrums which are taken by persons in perfect health, with the view to "keep off" the disease. Nothing is more certain than that various stimulants, such as ardent spirits, camphor, ammonia, capsicum, opium, &c., are often efficacious in breaking up the disease, when administered in its forming stage. It is important, too, that the public should be made aware of this fact, as the disease may be often averted, by their administration, before medical aid can be obtained.

vegetables, and perhaps no fruits, that may be used with safety during the prevalence of cholera; so that the best rule is, to confine our diet to such articles as an extensive experience has approved. Of this character, are bread, rice, *good* potatoes, beef, mutton, lamb, veal and poultry. The safest drink, is pure water of a moderate temperature.

Municipal authorities should, during the prevalence of cholera, prohibit, under a heavy penalty, the sale of such articles as are known to be powerful excitors of the disease. It is not sufficient to warn the citizens of the fatal consequences of indulgence, so long as the temptations to it are spread before them: the ignorant, the incredulous, and the inconsiderate, require, on such occasions, to be protected from themselves—and this can only be effected by placing the poisons beyond their reach.

Such is a brief outline of the means which the doctrine of contagion suggests, for the prevention of cholera: and it will be seen, that they are essentially different from those which have been so generally employed under the prevalence of the opposite doctrine. If the doctrine of contagion be true, the means of prevention here recommended, must be substantially correct; and their universal adoption of infinite importance: if false, we then stand completely defenceless before this desolating scourge; for the means of prevention recommended by the non-contagionists, although most extensively employed, have never yet proved successful. It must remain then for an enlightened public to decide, whether the cholera be contagious, and if so, to adopt the only means that will protect them from its ravages.

TREATMENT OF CHOLERA.

The terror with which cholera is so universally regarded, may be entirely ascribed to the rapidity with which it passes through its different stages; for if taken at the onset, there are but few diseases which may, by judicious treatment, be so readily controlled. Cholera is a disease in which *there is not a moment to be lost*; for in it, twenty minutes will oftentimes seal the fate of the patient. It is highly important, therefore, that every member of the community should be instructed in the means of arresting its fatal course; for it frequently happens, even in our largest cities, that medical aid cannot be obtained for hours after an attack.

As the few remarks which I shall offer on the treatment of this disease, are exclusively designed for popular instruction, it will be entirely unnecessary to premise any views of its pathology. A description of the prominent symptoms which mark its different stages, followed by some practical observations on the simplest and most efficient means of cure, is all that I shall attempt, as this is all that I conceive can be useful to the public.

Cholera presents, in almost every instance, three stages: * the premonitory, the spasmodic, and the col-

* In some instances, the attack of cholera is so sudden, and so aggravated, as to present but a single stage: the patient, without the slightest premonition, falls suddenly into a state of great prostration, attended sometimes, with insensibility. The pulse becomes almost instantaneously imperceptible at the

lapsed ; and it is necessary, for the purposes of medical treatment, that those different stages be distinguished from each other.

The premonitory stage is characterized by a mild species of diarrhoea. This diarrhoea, although seldom attended with griping, is usually accompanied with several other unpleasant symptoms : such as general lassitude ; loss of appetite ; uneasiness, with a sensation of sinking, in the region of the stomach ; coolness of the feet and hands ; giddiness, and sometimes pain in the head ; ringing in the ears ; twitchings of the muscles ; occasional numbness of the extremities, &c. The pulse is rather weaker than natural. The tongue moist, and covered with a whitish fur. The evacuations, at first, consist of the ordinary contents of the alimentary canal ; but gradually become of a lighter hue, and more fluid, till at length they assume the color and consistence of rice-water.

These symptoms, all of which are seldom present in the same individual, may continue, varying in severity, from one to six days, before the second or spasmodic stage supervenes ; and during all this period, the patient generally attends to his ordinary avocations, without suspecting the dangerous character of his complaint.

wrists, and the heat of the surface declines with great rapidity. Vomiting, purging, and spasms are either entirely absent,—or else manifested in but a slight degree. Indeed, the whole system seems so completely overpowered by the poison that scarcely a symptom of reaction appears.

In the early part of this type (before the skin has become completely cold) blood-letting, and the other means which shall be recommended for the cure of the spasmodic stage, should be employed ; but when the blood has entirely deserted the surface, the treatment should differ in no respect from that of collapse.

To an experienced eye, however, he manifests, in a slight degree, that peculiar expression of countenance which is so characteristic of cholera:—his features are sharper than natural; his eyes somewhat sunken; and the whole expression of his face is one of fixed sorrow.

If this form of the disease be left to itself, or be injudiciously treated, the symptoms become aggravated, and the spasmodic stage supervenes.

The spasmodic stage generally sets in with violent cramps, accompanied with severe vomiting and purging of a fluid resembling rice-water. The pulse is small and quick. The skin, though below the natural temperature, is still warm. The countenance is much shrunk, and expressive of great anxiety. There is a distressing thirst, attended with a burning heat, and sometimes pain, in the region of the stomach. The cramps, though not constant, recur at short intervals in paroxysms of dreadful severity. This stage is of short duration; for, if not promptly relieved, it soon terminates in that of collapse.

The stage of collapse is distinguished by a deadly coldness of the whole surface of the body. The vomiting, purging, and thirst still continue. The pulse is barely, or not at all, perceptible at the wrists. The voice is low and whispering. The breathing oppressed. The tongue cold. The face, hands, and feet are of a bluish color; and the palms and soles of the latter, corrugated. The skin has, in a great measure, lost its elasticity; and is bedewed all over with a cold, clammy exudation. The cramps have either entirely subsided,

or else have lost much of their former violence. The secretion of urine is totally suspended.

In the last degree of this stage, the pulse is entirely gone. The voice scarcely audible, and of a wailing tone. The features frightfully shrunk. The breath cold. The vomiting, purging, and cramps have now entirely ceased; and the patient lies in a state of helpless exhaustion. Although apparently insensible, his mind continues unimpaired till the last; and when roused, he will answer coherently, even a few moments before death closes the scene.

This short description of the symptoms that mark the different stages of cholera will, I trust, be sufficient to enable persons generally, to make a discriminative application of the remedies which I shall suggest. These remedies are few and simple, and such only, as my own experience warrants me in recommending.

As soon as an individual has reason to suppose that he is laboring under the premonitory symptoms of cholera, he should lose no time in applying his remedies; for, although this form of the disease, may sometimes continue, with but little aggravation, for days, there is no security against its rushing, at any moment, into the spasmodic stage. Twenty grains of calomel, combined with five of camphor, should be immediately administered, the patient kept warm in bed, and a free perspiration promoted for several hours. Even this simple treatment, followed by a few days of repose, is all that is necessary in a majority of cases, to restore the patient to his usual health. If, however, the symptoms continue obstinate, after the medicine has had time to act, five

grains of calomel, combined with five of camphor, should be repeated at intervals of two hours, till an evident melioration has taken place. This will be invariably indicated by the character of the passages; which, from having been light colored and watery, begin to resume their bilious tinge, and natural consistence. As soon as the secretions are completely restored, the further use of medicine is unnecessary; but great care must be taken, during the period of convalescence, to avoid all exciting causes. With this view, the patient ought to keep his bed for several days, and be strictly guarded as to the character of his diet, which should be light, sparing, and nutritious.

Although it is seldom necessary to bleed in this stage of the disease, yet, if the patient be plethoric, or if the symptoms be much aggravated, blood-letting ought by no means to be neglected; as it will, under such circumstances, be employed with great advantage, provided it be not carried to the extent of producing faintness. Cupping over the region of the stomach is also very important, and will, in most cases, supersede the necessity of general depletion.

Negroes on plantations, should be made to report themselves regularly, every morning and evening, to their overseers, whenever the cholera is in their vicinity; for, if left to themselves, they will almost invariably neglect the premonitory stage. Many of them have a great aversion to medicine, and, rather than be obliged to take it, will, if possible, conceal their symptoms. In order to remedy this, it will be necessary to appoint, from among themselves, some faithful spies, who shall be instructed

to give the earliest information of any symptoms of diarrhoea, which they may discover among their companions.

Many persons, during the prevalence of cholera, experience occasional numbness of the extremities; slight vertigo; sharp pains in the bowels; and numerous other disagreeable sensations, unaccompanied with diarrhoea. These symptoms indicate that the system is strongly imbued with the poison of cholera; and should warn them particularly against exposing themselves to any of those causes which are known to act as excitors of the disease. Such symptoms may generally be dissipated by a few drops of spirits of camphor, a glass of good wine, or any stimulating cordial.

The premonitory stage of cholera may, by prompt and judicious management, be invariably cured; but if left to itself, or if improperly treated, it never fails to run into the spasmodic form.

After the spasms and vomiting have commenced, there is no time to be lost; for if the disease be not promptly arrested at this stage, the transition to that of collapse is frightfully sudden.

In the treatment of the spasmodic stage, we must not trust to the operation of any single remedy, however efficacious it may be; for should this remedy chance to fail, the time will then have passed when others might have been useful. It is to a combination of measures that we must look for success; and the influence which they will exercise on the different symptoms, must be vigilantly marked, and carefully directed.

The remedial agents on which we must chiefly rely in

the spasmodic stage, are ealomel combined with opium and eamphor, dry heat, stimulating mercurial frictions, and eups applied over the region of the stomaeh. The patient, after having taken from twenty to thirty grains of ealomel, eomined with two of opium, and five of eamphor, in one dose, should be immediately placed between heated blankets, and every exertion made to produce a warm and copious perspiration. This will generally be effeted by surrounding the body with bottles of hot water, bags of heated sand, or hot bricks. In conjunction with this treatment, friction of the legs and arms should be made under the blankets, with stimulating mereurial ointment, and cups employed extensively over the stomaeh. As a general rule, blood-letting is not necessary ; but if the patient be robust, the spasms very violent, the skin still warm, and the pulse strong, it ought never to be negleeted. I have frequently seen patients, who had been tortured by the most violent spasms, almost instantaneously relieved, as soon as a vein was opened ; and I have never yet seen the stage, of collapse supervene, when general blood-letting had been judiciously employed in such eases. On the other hand, I have witnessed many eases, in the hands of physicians who were “opposed to blood-letting under *any* eircumstances in cholera,” in which the patients, laboring under violent spasms, with warm skin, and strong pulse, have suddenly rushed into hopeless eollapse : when, in my opinion, a timely and judicious bleeding would have saved them. Very generally a small bleeding will, in sueh eases, be suffieient ; but cases sometimes occur in which the depletion must be copious, before the

more violent spasms can be subdued. As a general rule, blood-letting, when expedient to employ it, may be carried, in an adult, to the extent of fifteen ounces, but should never be carried so far as to cause faintness. Stimulating friction is, in this stage of the disease, an important auxiliary; it serves, by its revulsive action, to keep up the heat of the surface, and thereby to allay the violence of the spasms, and when mercurial, as it always should be, it coöperates with the calomel in restoring the secretions. The compound mercurial ointment is the best for this purpose;* but in case it cannot be had, spirits of turpentine, tincture of cantharides, cayenne pepper, powdered mustard, or any other stimulating substance may be employed.

The distressing thirst, by which the patient is so constantly harassed, will be best assuaged by small lumps of ice, which should be allowed to dissolve gradually in the mouth. If ice be not convenient, cold water, in small quantities, may be substituted.

Under the prompt employment of these measures, the vomiting and purging will generally be checked, the spasms allayed, and the heat of the surface restored; but still the victory will not be complete; and our exertions must not in the least relax, till the disease has been entirely subdued.

As soon as the spasms shall have been in a great degree subdued, the opium should be discontinued, but the calomel and camphor should be repeated at intervals of

* This ointment is composed of the following ingredients: Ung. Hydrarg. fort. Ibss. Gum camph. dr. i. Pulv. capsici dr. iss. Ol. caryoph. dr. ii.

Mt. ft. Ung.

half an hour, in doses of five grains each, and this repetition continued until the passages shall have resumed their natural color, the secretion of urine shall have been restored, and every unfavorable symptom shall have disappeared.

The grand indication for the cure of cholera, in all its stages, is to restore the secretions; and to accomplish this, there is no agent with which we are acquainted so powerful as mercury. It is impossible, therefore, that patients can go wrong in endeavoring, before the arrival of a physician, to bring their systems under the influence of this remedy; for it is one which will generally save life, if promptly and copiously employed in this stage of the disease.

The treatment in collapse differs materially from that which is employed in the other stages of cholera. Diffusible stimulants, large doses of calomel, and powerful astringent injections, are the remedies on which we must mainly rely. In this stage, blood-letting is fatal; and frictions of every description are useless, if not pernicious. Our principal aim should be, to raise the sinking powers of the system by stimulants, while we endeavor, at the same time, to equalize them, by the exhibition of calomel.

The best stimulants for this purpose are, spirits of camphor, sulphuric ether, ammoniated alcohol, tincture of prickly ash, and the various species of ardent spirits.*

* Galvanism is also a most important auxiliary in the treatment of this stage; and should never be neglected when it can be conveniently applied.

Professor Nathan R. Smith, of Baltimore, has employed it in several instances with signal advantage, even after the condition of the patient appeared entirely hopeless. Fifty pairs of three and a half inch plates were employed,

In administering those stimulants, we should have no reference whatever to the doses given on ordinary occasions;—for, the system when collapsed, is in such a state of utter prostration, that nothing but the most powerful stimulation will rouse its dying energies. It is impossible to say with precision what quantity of any stimulant should, under such circumstances, be given at a dose; as this must in a great measure depend on the degree of collapse to which the patient has been reduced, as well as on the manner in which his system will respond to the different remedies employed. In my own practice, I have seldom given less than half a wine glass of spirits of camphor the first dose; and this I have generally had occasion to repeat several times, at intervals of half an hour.

If the camphor be rejected, other stimulants should be administered in doses of proportional magnitude, and repeated according to circumstances. Each dose of stimulus should be promptly followed by one of calomel, and this succession of remedies kept up till the condition of the patient shall have been evidently improved. From forty to sixty grains of calomel may be given at first, and from five to ten every half-hour afterwards, till the secretions have been completely restored.

Injections are of great importance, and ought not to be delayed a moment. The most beneficial are such as

with diluted muriatic acid. The wire of one of the plates was applied at various points along the superior part of the spine. To render it more efficient the integuments were scarified, and a metallic plate (a piece of coin) was applied to receive the wire. The other pole was similarly applied to the epigastrium. The skin was allowed to be besmeared with the blood which issued from the scarification.

are both stimulant and astringent.—A quart of hot water, (hot as it can be borne,) mixed with half a pint of brandy, and saturated with alum, is one of the best and most convenient.*—Even after the rice-water discharges have entirely ceased, injections of brandy and water, spirits of turpentine, &c., may be employed with great advantage as stimulants, and should be repeated according to the urgency of the case.

As soon as the heat of the surface has begun to return, (and not sooner,) stimulating frictions, and all the other means recommended in the second stage for promoting perspiration, should be employed.

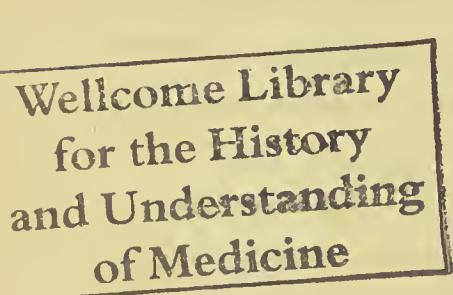
Great care must be taken, both in this and in the spasmodic stage of cholera, to prevent the patient from rising, on any occasion, from the horizontal position, before recovery is complete ;—as the instances are numerous in which relapse and death have resulted from the neglect of this precaution.

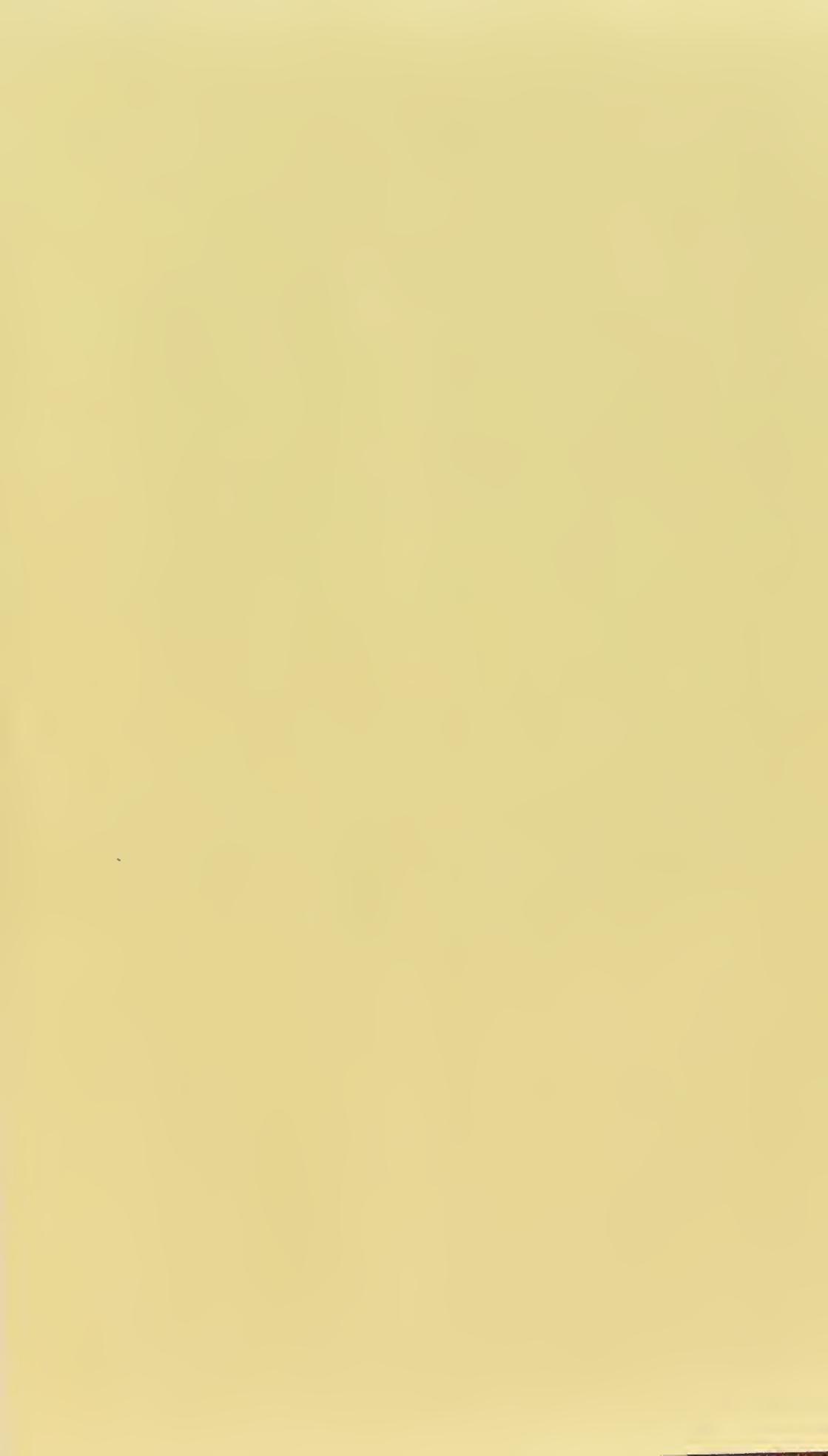
So dreadful is the mortality which generally attends collapse, that many believe the disease to be totally incurable after it has reached this stage.† This, how-

* This form of injection should also be employed in the spasmodic stage, whenever the rice-water dejections are copious and obstinate.

† In consequence of the great mortality which attends this stage, cholera is generally classed among the *opprobria medicorum*; although there is perhaps no disease, when properly considered, which affords such striking evidence of the efficacy of medicine. Cholera is a disease which is invariably fatal if left to itself—and one which is almost invariably cured if judiciously treated, either in its first or second stage—were it even true, then, that the stage of collapse baffled medical skill in every instance—the fact would argue nothing against the curability of the disease. As well might we class pleurisy, dysentery, and other diseases, whose curability is not doubted, among the *opprobria medicorum*, because, when permitted to reach their *last degree*, patients never recover from them.

ever, is a most erroneous opinion, and one that is productive of much mischief; as it oftentimes causes medical treatment to be prematurely abandoned, under the impression that the condition of the patient is beyond its reach.—It is well known to those who have had much experience in the treatment of cholera, that collapse (except in its *last degree*) is frequently cured: and that sometimes, under the most unpromising circumstances—even after hope itself has vanished, an unexpected change takes place, and the patient recovers. We should, therefore, make it a principle in the treatment of this disease, never to relax our curative efforts, much less abandon our patient, so long as a spark of life remains.







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